JANUARY, 1959

Industrial FINISHING

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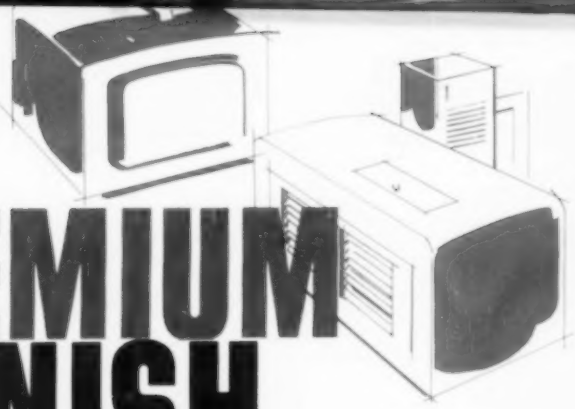

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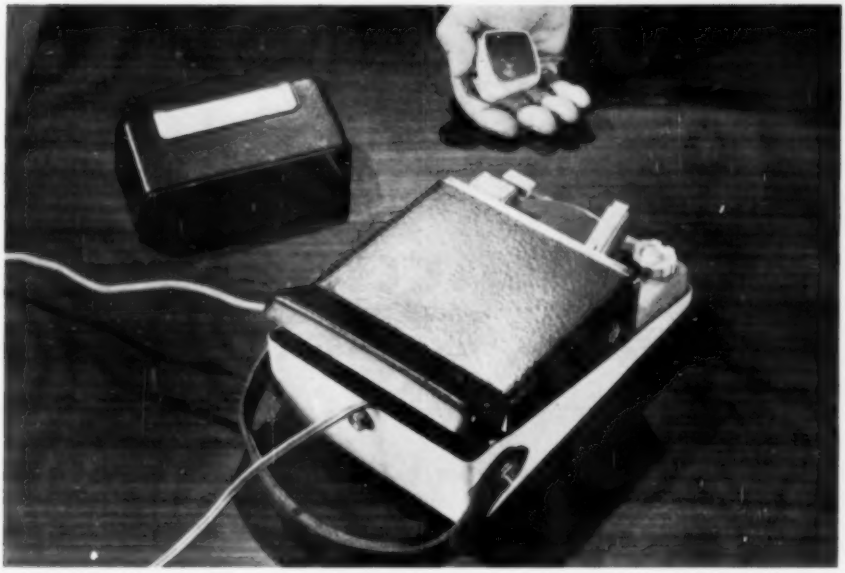

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BPA

monthly magazine for company executives, production superintendents, process engineers, chemists, purchasing agents, paint shop and finishing department foremen of industrial plants where product surface cleaning and painting are major operations in the manufacture of parts and products of all kinds.

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Random Comment

Anti-Skid Coating. In its modernization program, one large concern has adopted an anti-skid coating for all shipping containers. Making use of Du Pont's "Ludox" colloidal silica, the treatment is primarily designed to reduce product damage due to cascading boxes. The threat of injury to employees is also minimized. Tests indicate that treated containers can be inclined to approximately twice the angle of untreated ones before they start to slide.

* * *

No Need for Sandblasting. A new phenolic/vinyl system of maintenance coatings for metals—a system that eliminates costly sandblasting surface preparation—has just been announced by Union Carbide Plastics Co., Division of Union Carbide Corp.

Developed in the company's laboratories, the new system calls for use of a phenolic resin-based primer and vinyl top coat to provide protective advantages of vinyl coatings without costly surface preparation.

* * *

Bonding With Heat. Adhesive Products Corp., 1660 Boone Ave., New York 60, N. Y., announces the development of Heatweld, a new dry bonding adhesive for cementing fabric, leather, paper, plastic and other materials. In liquid form it is applied to the material and allowed to dry. When dry, a permanent bond is obtained when heat is applied, making it possible to adhere the coated materials to almost any surface. Once the material has been coated with this adhesive, a bond may be made days, months or years later. The adhesive is transparent, non-staining and resistant to washing and dry cleaning.

* * *

Urethane Foam. Auto travel is safer due to urethane foam. Dashboards, instrument panels, and sun visors, when cushioned with urethane foam, are not as lethal in a collision. Unlike other foams, urethane does not cause excessive rebound, but maintains relatively constant resistance until fully compressed. Automobile and aircraft manufacturers, using safety foam in interior trim, have found it to be a low-cost, easy-to-install material.

* * *

O. S. Finish Guaranteed. Development of a completely new type of house siding, made of vinyl coated aluminum, promises to simplify home exterior maintenance to an occasional washdown with a garden hose.

The carefree new siding, developed and marketed by Hastings Aluminum Products, Inc. of Hastings, Mich., retains its durable finish and attractive appearance through rigorous weather for years and years without requiring repainting.

The aluminum siding is coated with a special formulation made with Geon vinyl resin. Both sides of the

look over this impressive line

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aluminum are coated before the siding is fabricated. The metal then can be formed, bent, punched, and even applied to the house without affecting either the appearance or exceptional performance of the finish.

The enamel-like Geon coating—called "Superclad"—is wear and weather resistant far beyond finishes heretofore available. Durability is such that the manufacturer warrants the finish against blistering, cracking, or crazing for ten years.

* * *

Handle Small Parts With Vacuum. The Vac-U-Grip tool was developed for use in applications where the smallest parts have to be handled in a fast, easy and accurate manner. It avoids damage to delicate parts. The tool is connected to the vacuum system by a suitable length of lightweight, flexible, plastic tubing. A solenoid-operated valve between the vacuum line and the pick-up element is controlled by a foot-operated switch that allows the operator to release suction when the part is correctly positioned.

* * *

Increases Aircraft Visibility. Switzer Brothers, Inc., Cleveland, Ohio, has been awarded a contract by the Air Force to furnish 50,000 gallons of Day-Glo Blaze Orange daylight fluorescent aircraft paint and Filteray clear overcoat to safeguard some 13,000 non-tactical aircraft against mid-air collisions.

The luminous paint will be applied to each aircraft in two basic bands completely around the fuselage. The forward band will extend aft from the nose cone to include 20% of the length of the fuselage. The second band will begin at the leading edge of the horizontal stabilizer and go forward about 15% of the entire fuselage length.

Coating Infrared Reflectors. An improved process for coating infrared reflectors, to withstand high rotational stresses, was announced recently by The Singer Mfg. Co., Military Products Division. The new process, developed by the division's research and development arm, HRB, Inc., of State College, Penna., is currently being engineered for quantity production at Singer's Bridgeport (Conn.) Division.

* * *

Missile Fuel Baked. Solid propellant charges for guided missiles are being "baked" like biscuits in a recently-installed battery of industrial ovens designed by Despatch Oven Co.

The solid fuel, known technically as polysulfide polymer, is heat-cured to a black rubbery solid in a final stage of rocket engine production at Marshall, Texas, plant of Thiokol Chemical Corp. The curing operation takes place in big, steamheated ovens, operating at a temperature range of 100° to 200° F.

* * *

More Rubber. The American rubber industry will bounce out of its 1958 dip and resume its long-term growth pattern through 1959, J. W. Keener, president of The B. F. Goodrich Company, predicted in a year-end statement.

The United States, he said, will consume about 1,500,000 long tons of new rubber in 1959, compared with the estimated consumption of 1,350,000 long tons in 1958 and 1,465,000 long tons in 1957.

Of the new rubber consumed in the United States in 1958, about 64.2% was domestically produced man-made rubber, compared with 63.2% in 1957. Mr. Keener said this marked the fourth successive year in which the ratio of use of synthetic rubber has increased.

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Sags Their Cause and Correction

By Karl F. Schreiber
Senior Paint Chemist*

ANYONE who has worked with paint, varnish or lacquer, whether it be spraying an automobile or painting a barn, is aware of its tendency to run or sag. This property is annoying when one is brushing a single piece, but is quite costly in time and money when you are finishing hundreds of pieces an hour on a production line. Under these conditions, quick action to correct the situation is imperative.

Most paint production men, through experience, have gained an insight into the causes of sagging and have the knowledge to take appropriate measures. However, there are times when nothing seems to work. It is then realized that a number of factors are present which need to be more completely understood before any corrective action can be taken.

Too Much Paint on the Surface Causes Sagging

The most obvious cause of sagging is simply too much paint on the work. The wet film on a vertical surface builds up in thickness to the extent that the combined forces of adhesion to the substrate and resistance to flow are not equal to the downward pull of gravity. As a result, a sizable proportion of the wet film, which is not immediately adjacent to the metal surface, flows downward, rolling up the paint ahead of it. This localized action continues until equilibrium is reached between the opposing forces. Obviously, the force of gravity will be lessened or eliminated if the painted surface is at an angle or is level.

In a dipping or flow-coating operation, this action takes place uniformly over the entire drained area. The infrequent sags in such an application are usually due to excessive drainage over a limited area at a high viscosity, or to a change in the angle of hanging the work on the conveyor line.

Entry into the oven, before the enamel has had a chance to com-

*Forbes Finishes Division of P.P.G.Co

pletely drain, is another cause. This condition is usually accompanied by blisters. Flow lines, which are inevitable in dipping, should not be confused with sagging.

The solution to excessive film thickness is obvious—less paint. However, it must be recognized that some colors are inherently poor in hiding, therefore heavier coats are necessary. Yellow is a particularly bad offender in this respect. Frequently the difficulty can be improved by switching from a greenish shade of yellow to a reddish shade, or by incorporating white or orange. In general, any light color has less opacity than its darker counterpart. It is absolutely necessary that the paint, regardless of color, have sufficient hiding power to avoid the necessity of applying wet films of three or more mils in thickness.

Heavy Coat Wanted? Then Use a Mist Coat First

Where a heavy film is desired, for the sake of protection or to achieve a high "build," it is best attained by application of a mist or flash coat, followed by a normal full coat. Frequently this can be achieved, particularly on large pieces, by utilizing a 2-station spray setup. Here the few minutes between applications is of sufficient duration to evaporate enough solvent that the film has a chance to partially set up before more paint is applied.

The heavy films necessary for proper development of a wrinkle finish are best produced by spraying a relatively large amount of material at a high viscosity. The use of a primer also permits a high film thickness to be achieved with a minimum of application trouble.

Excessive Wetness of Film Can Cause Runs and Sags

The second most common cause of sagging is excessive wetness of the film. When a coating is laid down from a spray gun, considerable evaporation takes place between the gun and the surface being coated. It is estimated that around 50% of the solvent present in the reducer, and in the enamel itself, is lost in this fashion. As a result, under normal conditions, the deposited film has lost so much of its solvent that further flow at room temperature is virtually impossible. A limited mobility still exists on the topmost surface of the film allowing it to coalesce and thereby produce the desired smoothness. This, however, ceases in a matter of minutes as still more solvent evaporates from the surface of the tacky film. At this point we say that the enamel has "set up."

A wet film, on the other hand, by its very nature has what you might refer to as considerable fluidity or "runniness." The intrinsically high viscosity of the resins present in the wet coating is lowered due to the presence of the excess solvent. Accordingly, the enamel does not have a chance to "set up" or become thixotropic and therefore immobile; consequently it flows downward creating a "lace curtain" effect.

There are a number of considerations which may lead to an overly wet film. Fortunately most of

these can be altered. Simple over-reduction of the paint is one of the biggest causes. Even a low gloss primer, which normally dries very fast, will give trouble when reduced 100% or more. Such high reductions are of dubious economic benefit under any conditions.

Too Much Slow Solvents or Too Much Fluid Pressure

The use of slow evaporating solvents such as mineral spirits, high flash naphtha, Solvesso 100, etc., will retard the evaporation rate on hand spraying to the point where extreme wetness may result. Occasionally, these solvents will be present to excess in the enamel itself. This is particularly true with enamels that are used for both dipping and spraying, or electrostatic and hand spraying. The remedy is to compensate for this condition by employing a "faster" reducer such as VM&P naphtha or toluol for spraying. However, the recommendations of the paint supplier should be followed in this respect.

As is well known, air pressures have a decided bearing on the character of the film laid down by spraying. The greater the atomizing pressure, the better the chance for evaporation of solvent between the gun and the work. Atomizing pressures of more than 70-lbs. per square inch, however, evaporate so much solvent that surface flow is retarded and an "orange-peel" effect is produced.

When the fluid pressure is increased, a wetter film is deposited since more material is being applied and the ratio of paint to atomizing air is greater. Conversely, decreasing the fluid pressure, while maintaining a constant atomizing pressure, will "dry up" the film—although film thickness will be decreased. No hard and fast rules can be set down for regulating air pressures since each paint is different in its flow characteristics; consequently the best approach to the question of pressure regulation is made on a trial-and-error basis.

Because of the greater difficulty in securing mechanical adhesion, the chances for runs are somewhat greater over smooth surfaces, such as polished steel and plastic. On the other hand, application of coating material over porous or absorbent surfaces, such as castings, plaster or wood, is much less critical.

Primers; Low Gloss Enamels; Lacquers; Hammer Finishes

Primers and low gloss enamels ordinarily have less tendency to sag than gloss enamels, because of their higher solids content and faster solvent release. Air-drying enamels generally flow more readily than do baking types. This is due to the fact that the resins employed have a greater proportion of oil in them. For the same reason, brushing type enamels, when applied over a vertical non-porous surface will have an even greater tendency to flow downward.

Lacquers and styrenated alkyd-type enamels set up very quickly and therefore they do not present as much of a problem at normal film thicknesses as their regular enamel counterparts. The sagging of lacquers, as in automobile spraying, is usually due to heavy wet

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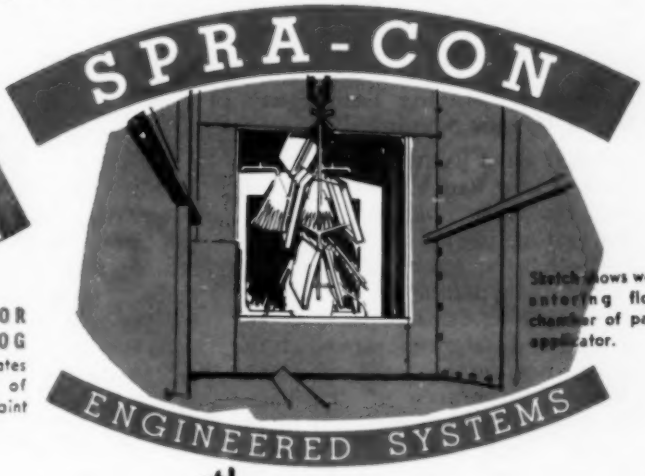

Sketch shows work entering flood chamber of paint applicator.

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films being laid down in an attempt to achieve "build" or to cover up the overspray. Large amounts of retarder, or slow solvent, have a particularly adverse effect.

Metallics and hammer finishes signal the approach of a sagging condition by displaying a "flooded" appearance. Here the film is so wet that the aluminum particles sink into the interior of the film, thus leaving the finer more thoroughly dispersed non-metallic pigment particles as the sole colorant. Since these pigments are darker than the aluminum, the result is a darker enamel.

Improper Spraying Technique Often Causes Sagging

Application technique or the way the operator handles his spray gun is particularly important on large flat vertical panels. "Arcing" of the gun—that is, spraying in an arc rather than parallel to the piece—deposits considerable paint in the center and "starves" areas at the sides. Respraying to overcome the skimpy appearance of the edges deposits still more material in the center, with disastrous results. Spraying less than 8-in. from the work, or using an over-size gun orifice (such as is properly used for lacquer) may produce a similar adverse surface condition. Attempting to spray the interior of a container without an extension gun invariably produces runs.

Many times an operator will begin at the top of a large panel and work his way downward to the bottom, and immediately start from there working his way upward. Obviously the lower section of the panel will have a definitely wetter coat than the top, with consequent greater chance for downward flow. Where two or more coats are put on, the time interval between them may determine whether a good job or a reject is produced.

It has been my observation that there is a fairly general tendency, when hand spraying an object, to deposit a relatively heavy coating at the middle section. Careful scrutiny of hundreds of 5-gallon cans, which had been sprayed while rotating on a jig, revealed that approximately 10% of them had some slight sagging. Invariably this defect occurred in the middle third of the piece.

Covering up overspray with additional spraying frequently leads to disastrous results. In hurriedly respraying, the result is a heavy, wet film, which can easily accumulate to the point that it becomes mobile. Occasionally it is possible for the paint manufacturer to add a puffing agent or employ a more polymerized resin to inhibit flow.

Hot and Electrostatic Spray Can Help Prevent Sagging

As might be imagined, hot spraying is definitely helpful insofar as sagging is concerned. Because of the higher solids content, higher viscosity and less solvent, the coating material sets up almost immediately. Automatic spraying and electrostatic spraying are also beneficial since they deposit a more uniform coating. Furthermore, they are not subject to varying spray techniques. Because of this feature, a heavier film may be deposited safely. [*Continued on page 14*]

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The prime consideration, in avoiding sags with electrostatic spraying (other than with the reciprocating disc type) is proper positioning of the guns or cones, so that an even distribution of paint results. When this optimum position is found, considerable future headaches can be eliminated by standardization on pressures, viscosity and type of reduction.

With the reciprocating disc type of electro-coating equipment, care should be taken that the length of the stroke properly "fits" the size of the piece being covered. Running different size pieces through the system, without adjusting the length of stroke, will lead to finishing problems.

From the above considerations, it is apparent that sagging is a phenomenon which is influenced by a number of factors, not the least of which is the human element. It can best be corrected by not "pushing the panic button" or employing the shot-gun method of approach, but rather by a careful determination of its cause, followed with appropriate remedial action.

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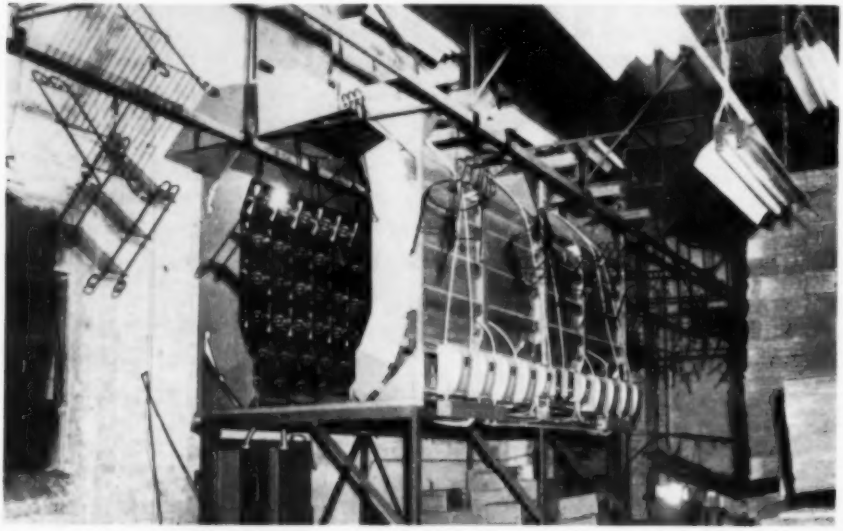

Chairs, stands and other furniture made from formed wire are coated with lacquer and dried in a ceiling-mounted infrared oven at National Wire Products Corp. plant, Baltimore, Md. The company reports that radiant heating provides excellent quality control for its products and has eliminated all "blushing" of lacquer. Automation in the finishing department, contributed by a conveyorized system of parts handling, plus rapid drying provided by infrared oven, speeds production and expedites customer deliveries. Use of the overhead oven also enables the plant to make more productive use of its floor space.—Story and photograph from Fostoria Pressed Steel Corporation, Fostoria, Ohio.

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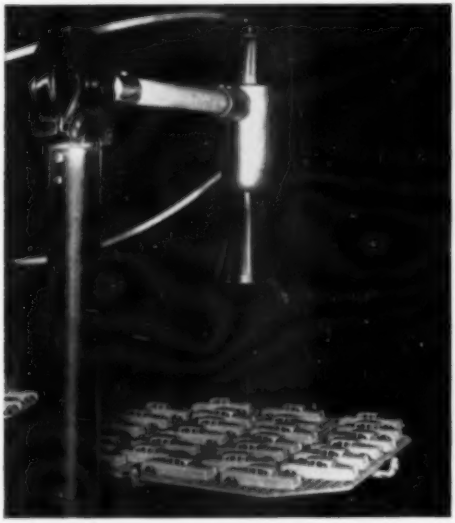

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For further information on what manufacturers have to offer —literature, products, supplies, etc., mentioned in the editorial departments, use the "Reader Service" return card in the rear section of this issue, page 120.

Industrial FINISHING

JANUARY, 1959, issue

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152	163	174	185	196	207	218	229	240	
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161	172	183	194	205	216	227	238	249	

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These inquiries are promptly answered. As a result, new products, materials and sources of information are continuously being uncovered; valuable contacts are made and timely suggestions for future articles to be published are often developed.

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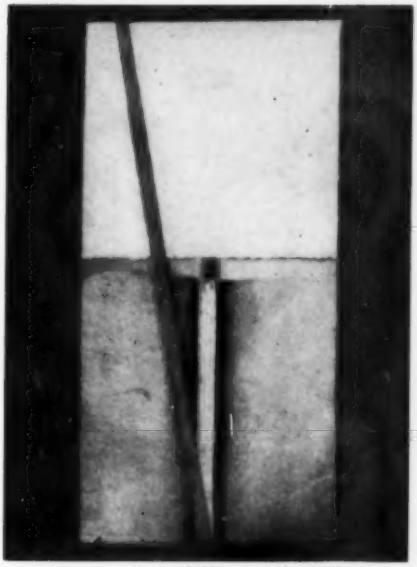
FOR THE PLATING INDUSTRY



Actual Unretouched Photo

QUALITY THAT SPEAKS FOR ITSELF—The upper half of the above silver plate was finished with Nikolas 2105 Clear Lacquer; the lower half with competitive recommended clear silver lacquer. A rubber band was placed over the two finishes and in two weeks the free sulphur had penetrated the competitive material with the above results.

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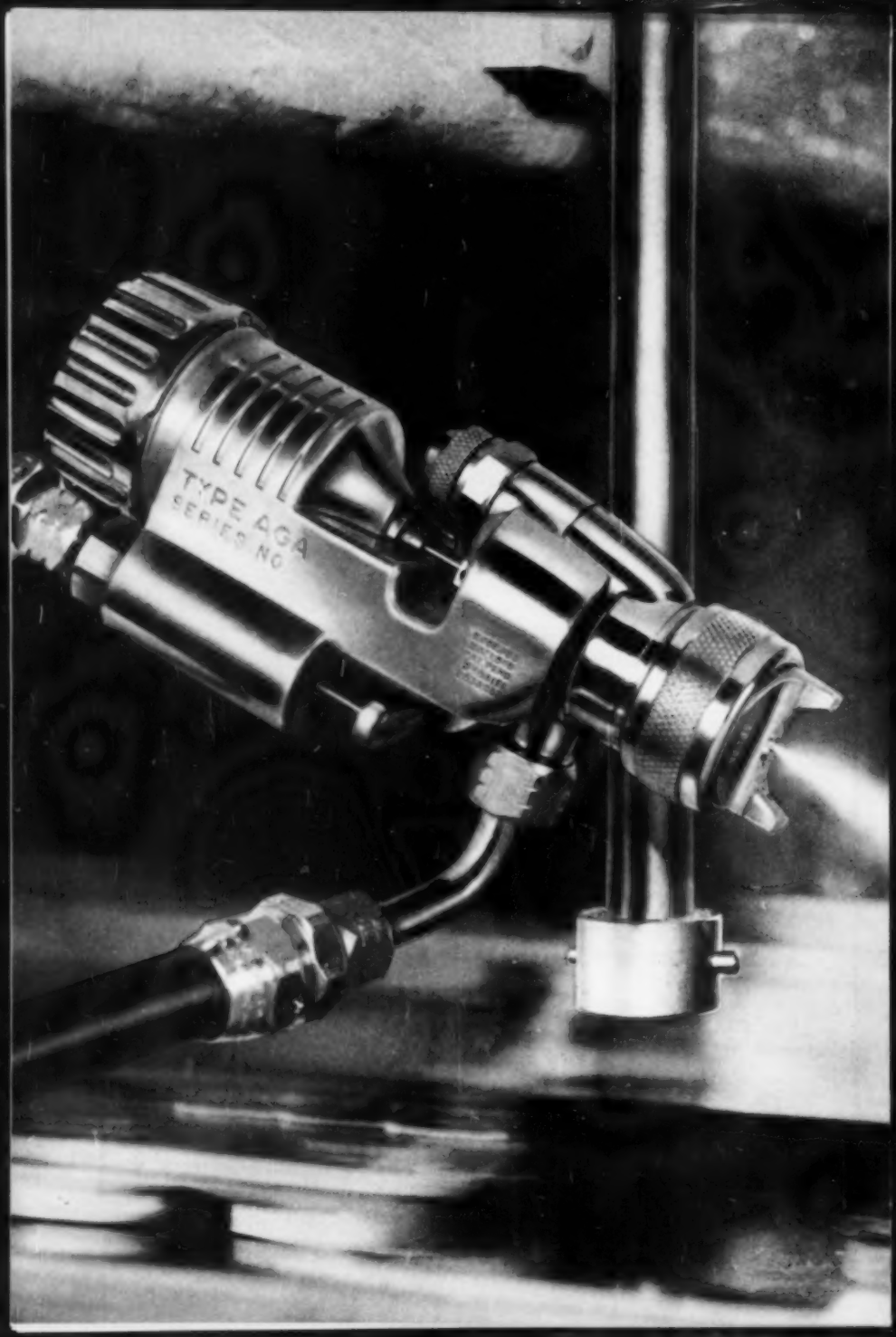
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Painting Structural Steel On a Conveyor Line

THE R. C. MAHON CO. of Detroit recently completed engineering and installing, for its own use, a king-size, conveyorized spray unit, capable of coating over 200 tons of structural steel shapes during an 8-hour day on a mixed production schedule. Now in doing two operations—transferring steel to the yard and painting it enroute—the unit moves more steel at lower cost.

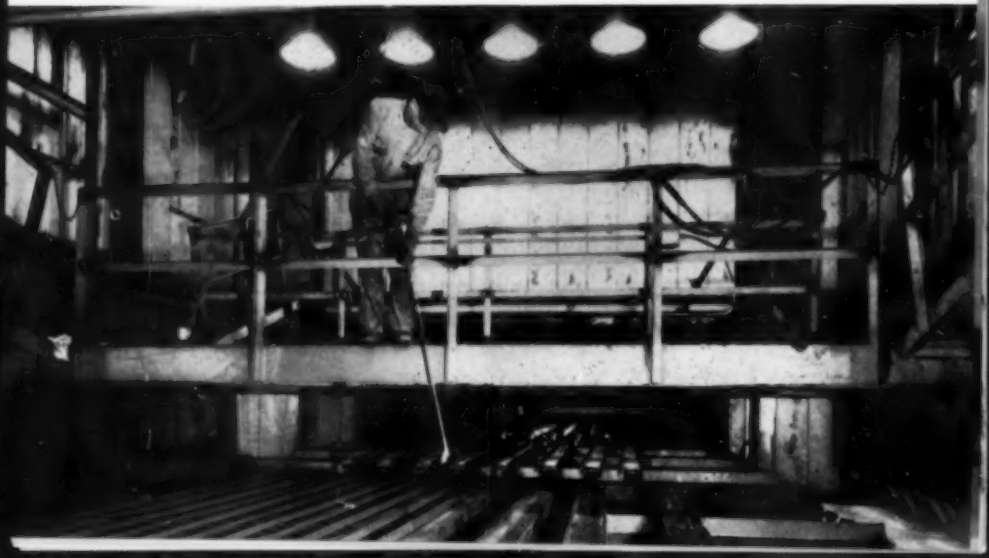
The unit is 400-ft. long; it is designed to handle work 200-ft. long, and as short as one foot. It is capable of supporting 1200-lbs. of steel per lineal foot, and can process a 52-ton girder, 130-ft. long in about 30 minutes. Any steel truss less than 15-ft. high can be put through the prime spraying operation with ease.

Already in operation, the installation normally requires the services of only three workers—two spray painters and a relief man. It is almost clean enough for the men to wear white shirts on the job.

Production Time Savings, 200% Flexibility in Handling

Mahon production engineers say that the unit already is chalking up preliminary production time savings of around 200%. Furthermore, better coverage of the primer coat over the work is achieved. An

At the second painting station the operator, standing on a catwalk, sprays down from above.



The exit, where painted structural steel, traveling on crossbar conveyor, leaves the plant.

air pressure of 65-lbs. per square inch is used to atomize the paint from the spray guns.

The conveyor section at the exit end also is arranged so the line can be extended to run the steel the length of the storage yard. This provides considerable handling flexibility—permitting stacking for storage, or shifting steel directly onto railroad cars.

To permit the paint to flow freely, with maximum penetration and coverage, temperatures of the air circulated through the spray areas are kept at between 70° and 80° F.

In the Mahon plant this painting setup handles assorted sizes and shapes of fabricated structural steel from four bays. The steel is loaded on the 15-ft. wide conveyor spray unit line by overhead crane, and unloaded in the yard with long-boom crawler type cranes that cover a large area with a minimum of movement.

Although hand-manipulated spray guns are used in the new setup, the work travels automatically past only two sprayers, each positioned in staggered spray stations. Speed of the conveyor line is variable,

A variety of structural steel work is easily and quickly spray painted from a pit below and from a catwalk above as it moves along lengthwise, supported on the crossbars of a long conveyor.

This operator, at Station No. 1, works in a pit below conveyor and sprays upward.

but normally it runs from 2 to 6-ft. per minute. This enables the two sprayers to cover all areas of the work with ease.

One Sprayer Works Under, and One Works Above the Conveyor

In processing work on the new line, the steel is placed on the entry or open part of the conveyorized line which starts inside the plant. It then travels about 100-ft. before reaching the first station—a pit type booth located under the line; then on past the second station, positioned over the line. From the second booth or station, the steel travels on an elongated conveyor section that runs through a drying area and then to the yard. By the time the painted steel reaches the unloading section of the line outdoors, it is dry enough for handling.

Each station or spray booth is about 20-ft. square and, through gratings in the center portion of the floor, is supplied with 50,000-cu.ft. of air per minute. Air from each booth is exhausted by air washer systems—one on each side of the booth.

Uniform Temperature Air; Safety Features Included

Air entering the booths is maintained at constant temperature and is exhausted, free of any residue that might cause damage to nearby property. Temperature of the air is controlled by directing the air through a heater before it is forced through ducts that lead to the floor grates of each paint station.

A feature of the second, or over-the-conveyor station, is that the catwalk on which the worker moves

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with his spray gun, can be lowered or raised by push-button control to accommodate steel of various sizes. The catwalk also includes a bumper safety device on the work-approach side, which automatically stops the whole line if or when a steel member contacts it.

The line also is designed so that compensation can be made to support all or various of its areas for the type of loads being carried. This is done quickly by means of removable diamond-shaped cross bars which reach from one side of the line to the other. These can be spaced as close as one foot in keyed slots on each side and over the rollers of each track of the conveyor. The conveyor line is powered by a 5-hp. motor.

Acknowledgment: Story and pictures supplied by National Editorial Service, Detroit, Michigan.

New Name: Hamilton Cosco

Hamilton Mfg. Co. of Columbus, Ind., has changed its corporate name to Hamilton Cosco, Inc. The trade name "Cosco" is derived from the original company name—Columbus Specialty Co.—adopted when the firm was formed in 1935.

Turco's New Headquarters

Turco Products, Inc., manufacturer of industrial chemical processing compounds, has broken ground in Wilmington, California, 20 miles south of Los Angeles, for a 66,000-sq.ft., million dollar National Headquarters. The new facility, scheduled for completion next summer, consists of an Administration Building and Executive Wing, a Research Center and an Engineering Service Building. It will be near Turco's modern "push-button" manufacturing plant, which was built on the site some three years ago.

Archer-Daniels-Midland Co. Promotes Three Men

Three members of Archer-Daniels-Midland Co.'s Minneapolis research staff have been promoted.

James R. Blegen has been appointed manager of technical service for coatings and resins. He will supervise the Minneapolis, Newark, and Los Angeles technical service laboratories.

J. R. Blegen R. A. Boller O. E. Faulkner

Robert A. Boller has been named group leader, coatings and resins research and development, with responsibilities for both water-thinned and conventional type resins used in protective coatings.

Owen E. Paukner has been appointed manager of the Minneapolis technical service laboratory for coatings materials and resins.

DeVilbiss 1959 Sales Program

The sales program of The DeVilbiss Co. for the new year has been developed for field representatives at a series of regional conferences. The company presentation on the theme "How, When and What to Sell" was made by a flying squad of divisional sales managers from the Toledo home office. Emil Frey, Dave Perry and D. L. Bohon composed the team which attended each of the coast-to-coast meetings. About half of each regional session was devoted to their presentation of the national sales picture.

Sales plans for the complete DeVilbiss lines of finishing equipment, as well as the line of industrial ovens, parts washers, dust collectors and kindred equipment produced by the subsidiary company, DeVilbiss Metal Fabricators Co., were covered at the meetings.

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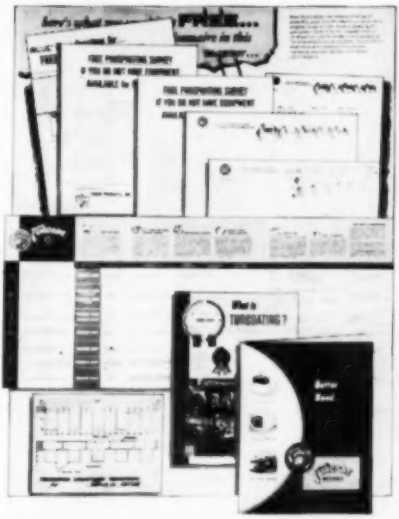
Turcoat processes currently in use range from small, inexpensive 3-tank set-ups all the way to elaborate 11-stage spray washing systems. With Turcoat, paint is anchored uniformly . . . permanently. Should accidental gouging occur, there is no corrosion "creep back" under the paint. Turcoat processes slash number of rejects and other problems involved in improper preparation, minimize packing and crating costs, establish and assure customer preference.



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Today all other PAINT HEATERS became obsolete...

This new paint heater by Binks has features found in no other production-rated heater. It is U/L approved, of course. And, it has been tested and tortured for over a year under actual product finishing conditions in plants like yours.

❶ ALL NEW CENTER HEAT

— Saves you 50% to 75% on operating cost. A 1500 watt element in the new Binks paint heater does the work of 3000 and 6000 watt units found in other heaters. There are two reasons why. First, the heat is in the center. It has to heat paint. Second, the new paint tract has an enormous heat contact area. Low heat does the work of high heat . . . actually eliminates a primary cause of bake-out.

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— Multi-finned tract design packs over 3½ sq ft of uniformly heated surface into a 15″ height and 3½″ diameter. You attain highest viscosity control at delivery rates up to 30 oz per minute. Temperature is thermostatically controlled at 150°F. The entire paint tract removes for easy maintenance.

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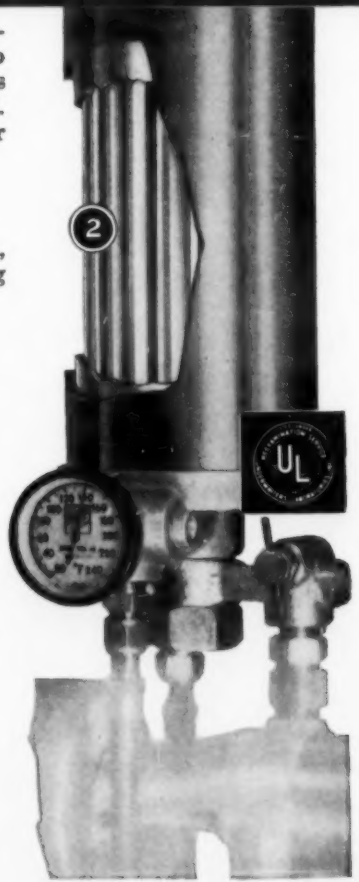

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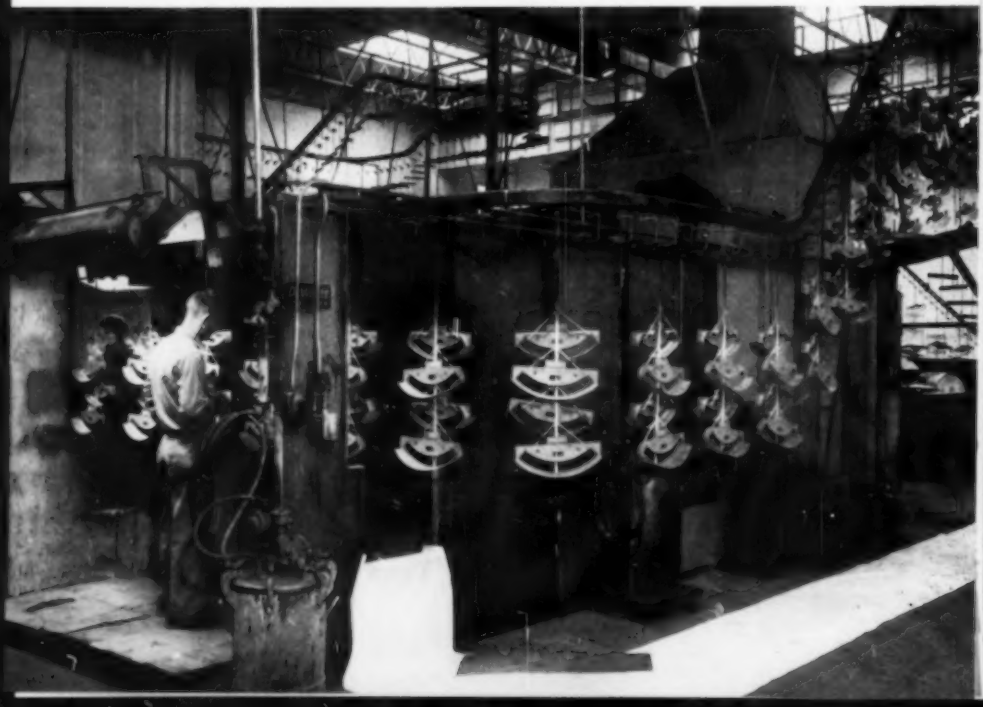
MASKED SPRAY PAINTING
Auto Instrument Panels

By Paul J. Dooley
Manufacturers Enameling Corp.

IT SEEMS THAT a custom finishing shop always gets the difficult and unusual product painting jobs. Take for example, automobile instrument panels. When you switch on the instrument panel lights of your car you probably give no thought about the operations, study and skill that go into making those panels match the car's interior finish and at the same time provide uniform visibility, free of glare, at the several dials which show engine temperature, oil pressure, gas supply, etc.

Painting these instrument panels to the required specifications would be economically impossible were it not for precision metal masks, air-controlled fixtures, and mechanical mask washing machines.

Two spray operators, working in opposed booths, apply light-reflecting off-white primer to both sides of each work piece as it passes through by conveyor.



Here workman is hanging raw zinc castings onto work holders attached to a conveyor which is carrying them to and from a 6-stage spray washer and Bonderizer tunnel.

To illustrate just how an intricate decorative painting job can be put on a production basis, let us examine the step by step painting of automobile instrument panels for a well known make of car.

Zinc die castings that form the instrument panel are placed on work holders, four to a holder, and hung to an overhead monorail conveyor which goes through a 6-stage power washer and phosphatizing machine. In this machine the various solutions and rinses are sprayed on the castings from four sides of the machine at 25-lbs. pressure. Operations that take place in this machine are shown in this table.

Stage	Solution	Temp. °F.
1	Mild alkali cleaner	160
2	Hot water rinse	140
3	Hot water rinse	140
4	Zinc Phosphate	135
5	Cold water rinse	Room
6	Chromic acid	170

After leaving the power washer the castings move, by conveyor, to and through an elevated gas-fired convection dry-off oven wherein they are subjected to a drying heat of 300° F. for five minutes.

Light Reflective Primer Sprayed on and Baked

A cooling period of ten minutes follows before the castings arrive at the water-wash prime coat booth. Here an off white, modified-alkyd-resin-base, light-reflective primer is sprayed on both sides of the castings as they pass through the booth, hanging from an overhead conveyor. This primer coat is used at a viscosity of 25 seconds at 78° F., as measured in a No. 4 Ford cup. The primer coat is allowed to flash-off (air dry) for six minutes before it is baked in an oven for 22 minutes at 270° F. [*To 32*]

[*Continued from page 31*]

Color Enamels Are Sprayed Through Precision Masks

After cooling for nine minutes the primed castings are removed from the work holders and placed on fiberboard-covered pallets. The primed castings are moved to a masking machine which is located in a water-wash spray booth. Here one of eight different color enamels (to match the interior body color of the automobile) is sprayed through a precision metal mask. The masked areas (letters, numbers and dividing lines) must remain white in order to reflect light through the various dials of the instrument panel.

The alkyd-resin-base color enamels are used at an average viscosity of 25 seconds at 78° F., as measured in a No. 4 Ford cup. Various colors of enamel require different viscosities in order to cover properly. Only the exposed part of the castings are painted in color.

The Masking Machine—A Three-Station Turntable

The masking machine consists of a 5-ft. turntable on which are mounted three air-operated fixtures and three precision metal masks. The table revolves slowly—3-rpm. By using three operators, this masked spraying operation is continuous. Here is how it is done:

One operator picks up a primed casting from the pallet and places it in the shaped platen of the fixture; he touches a hand lever to activate an air clamp which forces the casting up into the mask where it is firmly held in position for spraying. The second operator sprays all exposed areas of the

At the 3-station masking machine in spray booth where parts are placed in a precision form-fitting mask, clamped tight with compressed air, spray painted, removed and hung on conveyor.

WEATHER-RESISTANT BUTYRATE LACQUERS PRESERVE THE NATURAL BEAUTY OF ALUMINUM

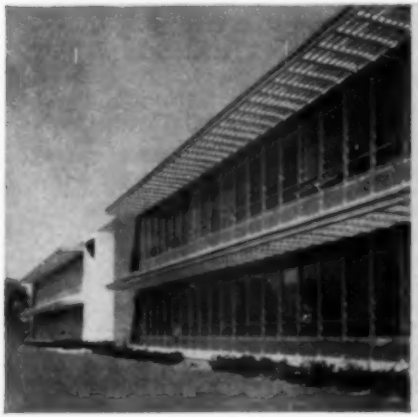
Here's news for aluminum fabricators.

Clear, colorless Butyrate lacquer—a new type of coating—provides lasting outdoor protection for aluminum.

Butyrate lacquers form tough, tenacious coatings that won't yellow, even under prolonged exposure to sunlight. They withstand oxidation and discoloring—have excellent strength and flexibility—are little affected by salt spray, water immersion or temperature change.

Maintenance costs are low, too, when aluminum products are coated with Butyrate lacquers. Apart from an occasional hosing in areas of extreme contamination, rain alone will keep the aluminum surface gleaming.

This combination of features makes Butyrate lacquers particularly advantageous for aluminum curtain walls, siding, spandrels, louvers, solar canopies and architectural trim and hardware.



Butyrate lacquers are easy and economical to use—afford excellent protection with a single coat. They are available from lacquer manufacturers in all parts of the country.

An informative 15-minute, 16mm. sound color film has been produced especially for viewing by those who design in or specify aluminum in an outdoor application.

North Central High School, Indianapolis, controls sunlight and heat transmission with aluminum sun cornices made by O. O. McKinley Co., Inc., of Indianapolis. The finish is protected by a clear Butyrate lacquer.

The finest lacquers for aluminum are made with

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SALES OFFICES: Eastman Chemical Products, Inc., Kingsport, Tennessee; New York City; Framingham, Massachusetts; Cincinnati; Cleveland; Chicago; St. Louis; Houston. **West Coast: Wilson Meyer Co.,** San Francisco; Los Angeles; Portland; Salt Lake City; Seattle.

ALUMINUM FABRICATORS!

Take these 4 steps to get the complete story. (1) Send for Eastman's catalog on Butyrate lacquer. It tells you where this new protective coating has proved particularly successful and why it is so effective in preserving aluminum surfaces. (2) Check Sweet's Industrial Construction and Architectural Files for specifications. (3) Send for film. Please indicate the date you plan to show the film and an alternate date. (4) Write for names of Butyrate lacquer manufacturers.

For more data, circle 167 on colored card.

casting with enamel. The third operator touches a hand lever to release the air pressure which allows the casting to drop out of the mask; then he hangs the painted casting to the overhead conveyor which carries it through the oven.

Used Paint Masks Are Washed and Exchanged

Of course, the spray masks require washing from time to time. Oversprayed paint accumulates on them. How often the masks must be washed depends upon the size of the mask openings and the viscosity of the enamel being sprayed. Perhaps the best answer is, "As often as they need it, to continue producing clean work." You learn this as you work at it.

Finished parts are inspected and packed in partitioned cells of heavy paper cartons.

Changing masks is a simple operation. Each of three operators removes a used mask from the machine; he removes a clean mask from the mask washing machine, hangs the soiled mask in the mask washer, and places the clean mask on the masking machine without stopping the turntable. It actually takes longer to explain how the soiled masks are replaced with clean ones than it does to change masks.

Painted castings travel upward by conveyor to an elevated, indirect-fired gas convection oven where the enamel is baked for 40 minutes at 250° F. Upon leaving this oven, the castings are allowed to cool for 20 minutes. Then they are removed from the conveyor, inspected, and packed in the egg-crate cells of cartons for shipment to the automobile manufacturer.

Teach Selling Points of Finish to Furniture Salesman

After 19 months of surveys, studies and preparation, the Furniture Finishes Educational Committee of the National Paint, Varnish & Lacquer Association has announced a program designed to assist retail furniture salesmen to sell more furniture by selling more "lookers" and more prospects.

Surveys conducted under the sponsorship of this committee have shown that furniture buying motivation is stimulated equally by design and the color or finish.

These surveys have also clearly brought out the fact that though the color or finish of furniture provides half of the buying motivation, few retail floor salesmen are sufficiently informed regarding furniture finishes to be able to use selling appeals based on finish or finish knowledge. This means that they can only use, in their efforts to sell, half of the selling features that are inherent in the furniture being shown.

The committee is composed of E. F. Cox of Gilbert Spruance Co., J. B. Dietz, of DuPont Co., Norman Kelly of Southern Varnish Co., W. I. Longsworth of Lilly Varnish Co., and Joseph Hager of Grand Rapids Varnish Co.

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Now! High Gloss

in a water-based baking enamel with

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Now, for the first time in production quantities, it is possible to get top quality, water-based, high gloss baking enamels. These can be made with amazing new *water soluble* Arolon 1000. Just Arolon 1000, pigment and water yield an excellent enamel that's easy to handle and bakes to a finish that compares favorably with conventional solvent-thinned products.

To the industrial user, the advantages of enamels made with Arolon 1000 are obvious. Here at last are excellent quality high gloss baking enamels that extend to finish coats the safety advantages that earlier Arolon water-based vehicles brought to prime coatings. Without sacrificing quality, you can now eliminate fire and explosion hazards involved in the use of conventional solvent-thinned enamels.

Finishes formulated with Arolon 1000 handle well and bake at reason-

Now in Full Production

Arolon 1000 is not a laboratory or pilot product. This thoroughly tested new product is available to paint manufacturers in full production quantities.

For more data, ci

NO MORE FIRE HAZARD

This combat between a blowtorch and a paint spray-gun is an actual photograph. Water-based Arolon 1000 formulations eliminate fire and explosion hazards during manufacture and during use.

able temperatures. They retain a very high gloss at normal pigment volume. And the finish has excellent adhesion and wear resistance.

There is a side benefit to users in the simplicity of enamel formulation with Arolon 1000. With fewer ingredients to buy, store and mix there is less chance of getting an off-spec batch during manufacture. Easier quality control for the paint maker assures a uniform product for the user.

Remember, enamels made with Arolon 1000 give you top quality and high gloss with all the safety advantages of a true water-based system. For more facts write for our free bulletin on Arolon 1000.

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GENERAL FOREMAN
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It's easily controlled, is non-sludging and cleans better. Works for a long period in the tanks. On the job it gives the maximum in paint adherence.

DuBois can help solve your phosphatizing problems. Write today, Dept. AG, The DuBois Co., Inc., Cincinnati 3, Ohio for free Handy Daily Control booklet used in phosphatizing operations.

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By Sam O. Bowles
The Bowles Color Drift Control System

YES, COLORS CHANGE their colors, too. That's a phenomenon known as color drift; it is familiar to everyone responsible for maintaining identical color standards in industry.

Color drift is the result of a natural yellowing and darkening process that takes place in the color standard for pigmented coating materials in the absence of light. It is not ordinarily caused by fading. In total darkness the vehicles in paints, enamels, etc., gradually yellow and turn darker; they drift farther and farther away from the original colors. And color drift is a continuing process that becomes progressively worse as time marches on.

Many colored coating materials that appear to match, in liquid form, do not always match when the film is dry. And paint-outs of colored liquid standards also turn yellow and darken in the absence of light. That's a problem with pigmented liquid coatings.

Your color drift problem can be controlled—with the Bowles Color Drift Control System. This system was actually started in 1925 when we began making color cards for the paint industry. Striving to produce accurate high quality color cards, our researchers developed a special coating material that made it possible for us to provide the paint industry with color chips that kept their color stability in the absence of light for many years.

Paint manufacturers asked us if we could develop accurate color standards that would help them match colors when producing large batches of paint for their industrial customers. We did. Then manufacturers of products that are painted asked us to produce a system of color standards that would enable them to maintain their several colors as originally adopted, for many different applications. This we did too.

The present Bowles Color Drift Control System provides stable col-

or standards with 22-sq.in. of viewing surface. Each standard is enclosed in a 4x6-in. black envelope, to protect its surface while passing through many hands from point of origin to point of final use. These envelopes can be placed in filing cabinets where the standards they contain will remain stable in color in the absence of light for long periods of time. Then, by matching the paints, enamels and other coating materials to the color drift control standards, you can always be sure that the colors will be maintained as originally established. Where the same colors are used in different sheens, gloss, semi-gloss and flat finishes are produced and supplied for accurate matching results. Incidentally, color control standards should be used for both black and white, too, because of the wide variations in pigments and vehicles.

Visual Color Comparison; New Cards Supplied

The Bowles system is based on the visual color comparison technique which many experts claim to be the surest method of accurately matching colors. These color standards are economical. They are used but once; then discarded, so that absolutely new, clean, accurate color standards are continually being supplied to Bowles' customers all over the United States and many foreign countries. Each black envelope bears your company name and trade mark, your paint color name, and code number. The envelopes are filed and are quickly available; they can be mailed anywhere and can be used by anyone.

Magnesium Clear Anodize Process

STEP BY STEP, the magnesium present clear anodize process is as follows:

1) The metal is buffed with a 320-grit abrasive to achieve uniform brightness of the desired luster.

2) Parts are immersed in an alkaline cleaner for three to ten minutes; then they are given a cold-water rinse.

3) Parts are immersed in the anodizing bath for less than one minute; then they are given a cold-water rinse and a hot-water rinse.

4) When the parts are dry, lacquer or varnish is sprayed on and baked dry (typical time and temperature: 20 minutes at 250° F.). Certain lacquers and varnishes can be air dried.

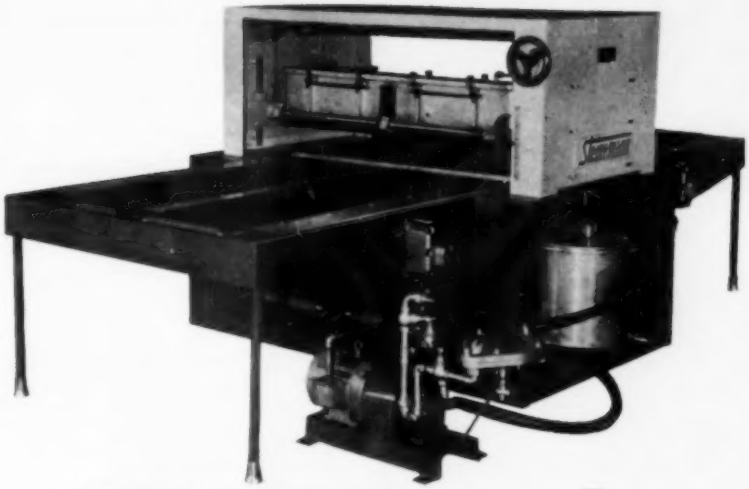
In 20% salt-spray tests, magnesium finished with clear anodize, plus lacquer or varnish, has passed 500 hours with virtually no change in appearance, according to the Dow Chemical Company.

This anodic treatment can be applied to all forms of magnesium, such as sheet, extrusions, die castings, sand castings and forgings.

Barrett Appoints Chicago Firm As Its Representative

The Leon J. Barrett Co., manufacturer of centrifugal equipment, announces the appointment of George H. Anderson & Associates, 205 W. Wacker Drive, Chicago 6, Illinois, as Sales Engineers in the Chicago, Northern Illinois and Northwestern Indiana territories for Barrett oil extractors, dryers, washers, washer-dryers, galvanizers, breakers, enamelers and impregnators.

Through this new association, prospective users in the midwest territories will be able to call on the facilities of Barrett's research and development laboratory for solutions to special problems for which centrifugal equipment is the logical and economical answer.



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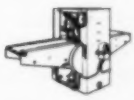
PRESSURE CURTAIN COATER

For precision organic finishing

Flat and contoured products are finished with a speed and precision unequalled by any other process. Uniform coating is controlled to .5 mils thickness. Speed can be steplessly varied from 130 to 400 ft./min.

NO MIST! NO SPLASH! NO WASTE!

Unused material is returned to the reservoir for recirculation. One or two component polyesthers, vinyls, epoxy resins, lacquers or paints are applied to any flat or near-flat stock. Strict control of pressure, speed and viscosity produce a uniform coating that is matchless by another method.



Woodworking industries contact . . .

wilco machine works, inc.
Box 3722, Municipal Airport
Memphis, Tennessee

WRITE FOR LITERATURE AND DATA

Metal-working industries contact manufacturer GEORGE **KOCH** SONS, INC. Evansville 4, Indiana

For more data, circle 171 on colored card.

Where clay pigeons are placed on upright spindles on the turntable; the spindles are traveling left to right (counter-clockwise) to enter spray booth.

By Fred D. Johnson

Automatically Painting Clay Target Pigeons

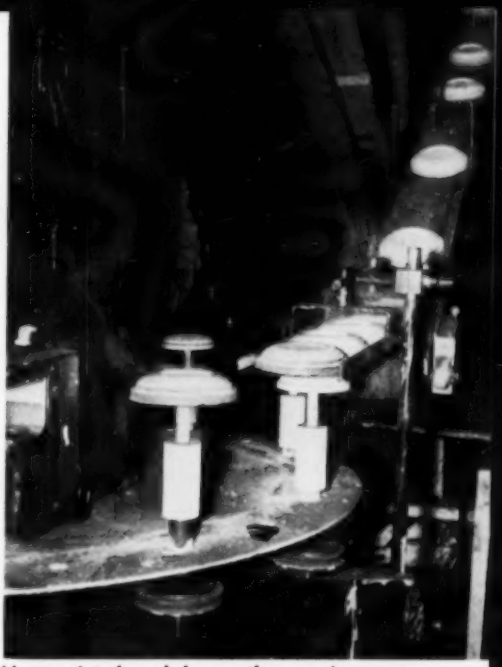
WHEN considering automatic painting, the managing heads of most firms think of complicated equipment costing large sums of money. That this need not be so is illustrated by the firm of Nelson Long & Sons, Ltd., of Hamilton, Ont., Canada. This company manufactures clay pigeons for target shooting.

For clear visibility each pigeon has a yellow circular patch applied to its top surface. Since the targets are sold at very low prices and are made by the tens of thousands from a combination of pitch and cheap fillers, painting has always been a problem.

The Painting Problem .... Several Things to Consider

The colored circle must dry in two to three minutes to meet production schedules. Solvent-thinned coatings brought staining difficulties from the pitch binder. Fluctuating seasonal business brought regular dislocation of the painting operation, because of the need to employ unskilled help.

This simple one-gun automatic spray painting setup applies paint to small saucer-shaped items as they rotate on vertical spindles mounted on a revolving turntable; the paint dries as the items move away on a series of belt conveyors.



Here painted work leaves the spraying zone and advances to automatic unloading device, and from there to a conveyor belt.

A painting system was needed that would provide ample drying facilities no matter what was the production rate. These facilities had to take up a minimum of floor space. Production capacity had to be fully variable from a base rate to twice that rate, with no change in labor demand. Application efficiency had to be high so that a minimum of exhaust air would be removed from the building. Large air removal leads to winter heating problems and the possibility of neighborhood air pollution. Also, the system had to be versatile enough to accommodate all foreseeable future coating improvements.

The equipment installed has a capacity which can be varied from a base production rate of 2400 pigeons per hour, to a maximum production of 4800 per hour. All drying is done on a conveyor which circles around the perimeter of the ceiling of the painting room and gives a drying time of about 3½ minutes. Air removal is nil, since the paint now used is a water emulsion type, and the automatic spray gun is designed for minimum overspray. The spray booth is so equipped, however, that should a solvent exhaust be desired in the future it can be easily installed through a roof stack.

Automatic Painting Facilities; Spindles Rotate The Work

The heart of the painting unit is the automatic painting section. Here is a steel turntable which turns at a speed of 2½ revolutions per minute through the spray booth. Upright spindles are arranged equidistantly near the outer edges, with a circular wooden disc on top of each spindle. One clay pigeon is placed, concave side down, over each of these discs as they are about to move into the spray booth.

Each spindle passes through a bearing mount in the turntable,

The automatic spray painting zone. Notice the baffle plates which protect rotating spindle (carrying the work) from overspray.

and the axle extends below the turntable. That part of the axle which extends down below the turntable is fitted with a wheel as shown in the illustration. As the turntable moves toward the spray booth, the axle extension engages a grooved steel track which raises it up before it enters the booth.

Two metal baffles extend down from the underside of the disc holder inside the booth to protect the axle from paint spray. As the spindle moves into spraying position, the wheel on the underside engages a moving belt which spins the spindle and the clay pigeon on top at about 300-rpm. during the actual spraying. At the same time, an arm from the spray gun engages a moving mechanism under the turntable, causing the gun to move through an arc of about an inch to follow the spinning pigeon. As soon as the gun completes this movement, it becomes disengaged and moves back ready to spray the next pigeon. The spray pattern is fully controllable so that an even circle of color is applied to the pigeon, with no masking needed.

On leaving the spray booth, the spindle, with the bottom end of the axle still supported by a steel track, moves toward the open end of an unloading channel. The disc-shaped clay pigeon moves into this channel so that its edges are just above the end arms. At the same time, the supporting track underneath ends and the spindle drops down to move beneath the unloading channel, leaving the pigeon resting on it.

Automatic Unloading Onto Conveyor Belts; Drying

As the next pigeon comes into the same position, it pushes the pigeon in front of it forward. The unloading channel holds four pigeons before the forward one is pushed onto an ascending conveyor belt. The paint on the pigeons dries as the pigeons move along by conveyor.

The conveyor belt that carries pigeons up to the ceiling for their ride around the room, and the belt that conveys them down again—both belts are fitted with studs to prevent the load from sliding down the 30° rise. At a production rate of 2400 per hour (the base rate) the pigeons stay on the 60-ft. long belt for 3½ minutes. At the end of this time they are unloaded, stacked and packed.

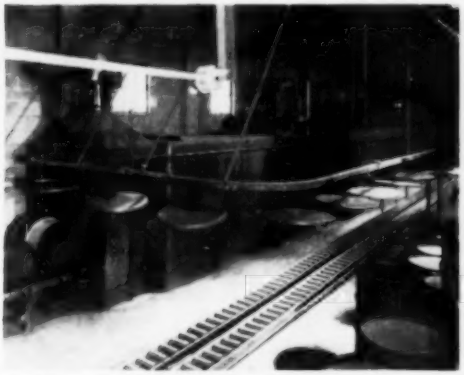
The drive for the conveyor belt is a ⅓-hp. single-phase 60-cycle motor. Since the company does not

"DRUMMING"

up a faster output of quality, finish-baked steel drums & covers in a CONVEYORIZED OVEN

lanly

If your manufacturing operations involve the application and drying or baking of a product finish, you're on solid ground when you consult LANLY regarding your oven or dryer requirements.



Typical of all Lanly installations, this oven exemplifies coordinated mechanization with low cost efficient drying action.

LANLY welcomes a discussion of your drying and baking operation problems. Write for Catalog No. 560 and get better acquainted with our organization.

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Find Your Representative In The Yellow Pages

THE lanly CO.
FINISHING OVENS
2800 Euclid Avenue • Cleveland 15, Ohio

Atlanta, Georgia • Birmingham, Ala. • Boston, Mass. • Chicago, Ill. • Cleveland, Ohio
Columbia, So. Carolina • Columbus, Ohio • Detroit, Mich. • Houston, Texas
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For more data, circle 172 on colored card.

intend to use solvent-thinned finishes in the near future, this motor and the similar ¼-hp. motor that drives the turntable and spindles are not explosion-proof. The drive motor for the whole conveyor is mounted right over the spray booth. After being geared down to the right speed it engages a pulley which, in turn, drives the lift conveyor belt directly, as well as the next conveyor which takes the pigeons along the ceiling for the first lap around the room. A circular metal turntable picks them up off one belt, carries them through a 90° arc, and deposits them on the next conveyor.

Emulsion paints work very well in this application. The finish coat, when dry, is flat. It dries on the hot pigeons without blistering or staining in the time demanded. It works well through the automatic spray gun which is triggered by contact with the moving spindle mechanism. Air pressure used is 60-lbs. per square inch and liquid pressure in the agitator pressure pots is 2 to 3-p.s.i. Travel distance from material pot to the gun is about 4-ft. through the supply hose. Production averages about 20,000 pigeons per gallon of finish.

Aerosol Spray Products

A 16-page, 8½x11 booklet, illustrated with drawings and pictures, lists the complete Crown line of aerosol products —rust inhibitor, Kleer Kote, plastic spray, tool maker's ink, glass frosting, color code paint, maintenance and touchup paint, bench fire extinguisher, zinc chromate primer, etc.

For a copy, write Crown Industrial Products Co., Dept. IF1, 1003 Amsterdam St., Woodstock, Illinois.

For more data, circle 23 on colored card.

Beautiful Mahogany Finishes in Brown

MANY PEOPLE, both in and out of the furniture industry, think of mahogany as being a natural red in color. When styles in furniture changed to contemporary designs and shades of brown rather than red, mahogany sales began to slide.

Really, mahogany is no more red than walnut is brown, yet it is a rare day when an advertisement of furniture, or of a television cabinet, does not refer to the color as a "mahogany finish" or a "walnut finish"—of course, referring to metal or plastic products painted, photographed or printed in red or brown simulation of mahogany or walnut.

Walnut, which when cut is more a lavender grey than a brown, has been finished brown because brown is the most beautiful color for it. Mahogany, on the other hand, which definitely always is a shade of brown (though in a strictly technical sense brown is a hue of red) was originally finished a dark almost red-black by Chippendale, because red was the most beautiful color that could be developed on mahogany with the primative vegetable and berry stains and dyes available in those early days.

Now, with modern materials, techniques and the highly developed skills in wood finishing, mahogany can take any of the so-called decorator browns in the natural textures, and with the high figure values which the fashion in furniture today decrees as a must. With th cooperation of 24 of the top finishing firms of the country this has been done. More than 44 different shades and textures of brown have been developed and carried to the furniture industry under the promotion slogan, "Contemporary Mahogany with the New Look."—*Excerpts from an address by Teel Williams of The Mahogany Association, Inc.*

airless* SPRAY COATING

*Spray Painting Without Air

Spray Painting With Air — Airless

This new spray painting process (without air) will minimize your over-spray problems, reduce health and fire hazards, cut maintenance and clean-up costs, save paint, time and labor as well as reduce your auxiliary painting equipment requirements.

Over and above these advantages . . . a Better Finished Product is the final result. See it at the show.

YOU'LL SEE IT AT THE SHOW!

in operation at

BOOTH 1045
National Plant Maintenance & Engineering Show,
Cleveland, Ohio
January 26-29, 1959

Write for Airless Spray Painting brochure.

NORDSON CORPORATION
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THE BEST IN SPRAY COATING EQUIPMENT
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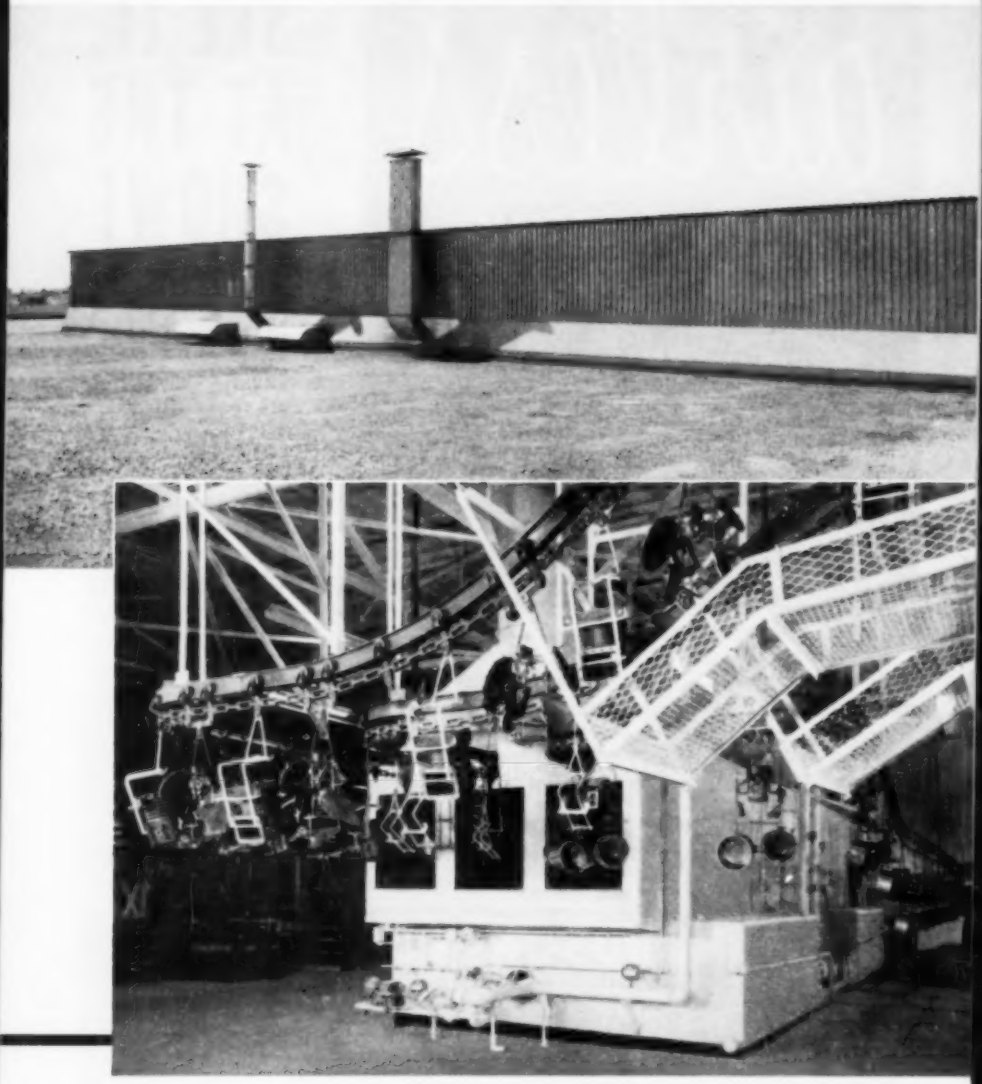
Processing EQUIPMENT



The Mahon Dehydrating Oven (top) was installed on the Roof to Conserve Space Inside the Plant. Below: Three Conveyor Line Two-Stage Metal Cleaning Machine—Another Unit of Equipment in the Modern Compressor Processing Facilities in the Copeland Refrigeration Corporation's Plant, Sidney, Ohio.

For more data, circle 174 on colored card.

. . . the EXPERIENCE that goes into the PLANNING and ENGINEERING of MAHON EQUIPMENT is the item of GREATEST VALUE to YOU!

COMPRESSORS are Dehydrated, Sealed, Tested, Painted, and Charged with Refrigerant on Continuous Conveyor Production Line

The High Temperature, Low Dew Point Dehydrating Oven, illustrated at the left, is installed on the roof. It is part of the modern straight-line production facilities for processing Compressors in the Copeland Refrigeration Corporation's plant, Sidney, Ohio.

When you need Processing Equipment or Special Production Equipment of any kind, you, too, will want to discuss methods, equipment requirements and possible production layouts with Mahon engineers . . . you'll find them better qualified to advise you, and better qualified to do the initial planning and engineering of equipment that will produce the desired end result at minimum cost per unit processed.

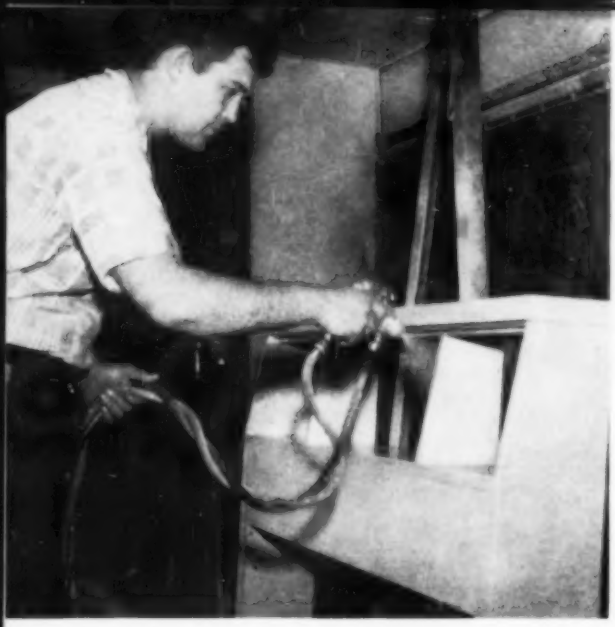
THE R. C. MAHON COMPANY • Detroit 34, Michigan

SALES-ENGINEERING OFFICES in DETROIT, NEW YORK and CHICAGO

Engineers and Manufacturers of Complete Conveyorized Finishing Systems: Metal Parts Washers, Metal Cleaning and Rust Proofing Machines, Conveyorized Cleaning and Pickling Machines; Dry-Off Ovens, Spray Booths, Electrostatic Spray Enclosures, Flow Coaters, Dip Coaters, Finish Baking Ovens, and Paint Stripping Equipment; Core Ovens, Soldering Ovens, Heat Treating and Quenching Equipment for Aluminum and Magnesium; Dust and Fume Control Installations, and Many Other Units of Special Plant and Production Processing Equipment.

See Sweet's Plant Engineering File for Information and Typical Installations or Write for Catalogue A-659

MAHON



By SANFORD LAWS
Finishing Foreman
Harper Furniture Co.
Lenoir, N. Carolina

The CORDOVAN Finish On Bedroom Furniture

WE MANUFACTURE furniture which is modern in design, construction and finish. The woods most commonly used are mahogany, walnut, cherry, elm and oak, with some solid wood parts in pecan, hackberry and gum. For these modern suites the color of the wood is made lighter by a double application of modern toners; this treatment does not hide the grain figure lines.

There is still a demand for the traditional mahogany in Cordovan finish. In preparation for the Cordovan finish, wood surfaces must be made exceptionally smooth; the wood must be well filled and the finish coats must be sufficiently heavy to permit thorough rubbing and polishing to bring up the sheen—and to produce a mirror like surface.

Surface Preparation; Glue Sizing; Sanding

To produce any high quality finish, the wood surfaces must be thoroughly and carefully sanded to make them smooth. For the Cordovan finish, this is especially true. We glue-size our plywood with a mixture of eight parts water to one part of animal glue, plus a wetting agent. When the sized surfaces are dry they are sanded

Includes glue sizing, sanding, stain, wash coat, filler, sealer, glaze, shading stain, 3 coats of hot lacquer, rubbing, polishing.

with No. 3/0 sandpaper, followed by sanding with No. 5/0 sandpaper. At the conveyor loading station, just outside the finishing room, every piece is inspected and any touch-up sanding that may be needed is done to make sure that all surfaces are perfectly smooth.

Modern Equipment Aids in Producing a Quality Finish

All of our finishing operations are performed on an overhead monorail type conveyor. Spray booths throughout the plant are of the water curtain type. No pressure tanks are used in the spray booths; all coating materials are supplied to the spray operators by a circulating pipe system.

In the central mixing and supply room (which is fireproof) there are seven 350-gallon tanks equipped with agitators and pumps. Adjoining this room is the drum storage which has steel racks to hold drums of material. An overhead monorail with electric hoist permits one man to easily and safely handle drums of finishing material in the supply room. While this room is of fireproof construction it is further protected by automatic sprinklers and 2-shot CO_2 systems.

Our drying rooms are steam heated and equipped with thermostatic and humidity controls.

The Cordovan Finish; Stain; Wash Coat; Filler

In producing the Cordovan finish the first operation is to spray a dark tracing stain around the edges of the tops and drawers, and

Cases move down the left lane while drawers are rubbed on the right hand lane.

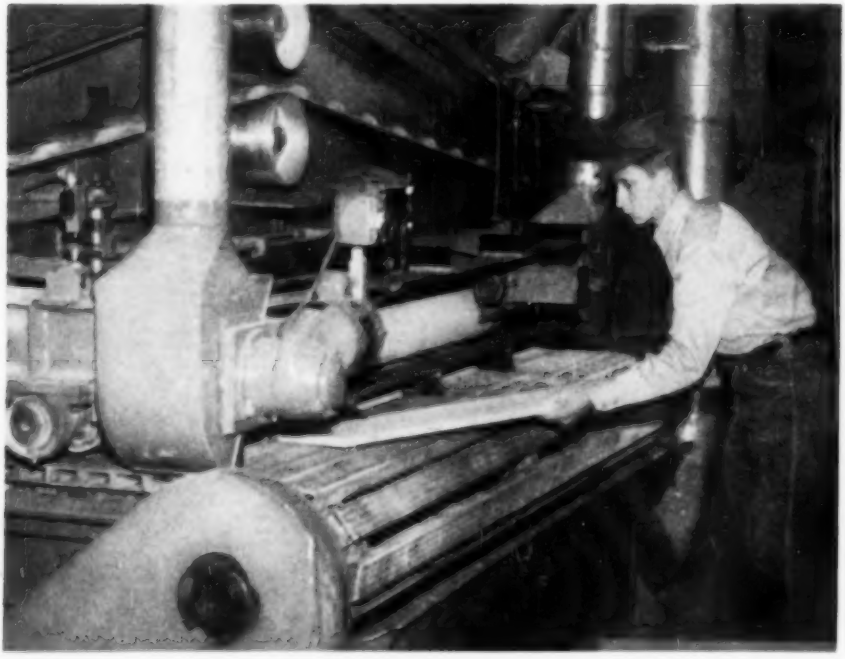
on the posts. For this operation we use an atomizing pressure of 40-lbs., and fluid pressure of 10-lbs. A flow-out period of six minutes is allowed before the tracing stain is oven dried for 12 minutes at 120° F. and at 35% relative humidity.

The stained pieces travel to cool for six minutes before an NGR stain is sprayed all over at an atomizing pressure of 35-lbs. and fluid pressure of 15-lbs. A flow-out period of seven minutes follows, after which the stain coat is oven dried for 20 minutes at 120° F. and 35% relative humidity.

Following a cooling period of 8½ minutes, a lacquer base wash coat is sprayed at 35-lbs. atomizing pressure and 10-lbs. fluid pressure. A flash-off period of ten minutes is allowed. The wash coat is dried for ten minutes at 120° F. and at 35% relative humidity. During a cooling period of five minutes the wash coat is scuff sanded with No. 8/0 sandpaper.

For this finish, filling is a very important operation. An oil-base filler is sprayed on at 30-lbs. atomizing pressure, and 20-lbs. fluid pressure. After a short flash (air drying) time, the filler is thoroughly padded in, wiped off and the surfaces are cleaned before the pieces are inspected. We allow 20 minutes for these operations; we want

An automatic belt sander and brush-off assures smooth surfaces on glue-sized plywood.



WATER WHITE LACQUER

Daconite 5600 Water White Lacquer saves time and money on the production line, makes your product sell faster in the market.

A ready to spray clear lacquer, (Alkyd fortified) Daconite 5600 is recommended for use over blond stains, light fillers, light natural woods, Masonite and metal.

Daconite 5600 has excellent cold check resistance and produces a finish of exceptional paleness and color retention quality that will not ring from alcohol, water or hot dishes. It is highly resistant to scuffing and scratching.

5600 has been fully tested under actual market conditions. It has all the time and money saving features that assures you of production line economy as well as superior finished results.

Write for specifications sheet and testing samples on your letterhead.

JAMES B. DAY & COMPANY

1872 Clybourn Avenue • Chicago 14, Ill.

fine production finishes for industry since 1906.

For more data, circle 175 on colored card.

Here the filler, which has been sprayed on, is padded in and the surplus is cleaned off.

to be sure that we get well filled surfaces. The filler is oven dried for two hours at 120° F. and a 35% relative humidity. The pieces leave the oven and cool for 60 minutes.

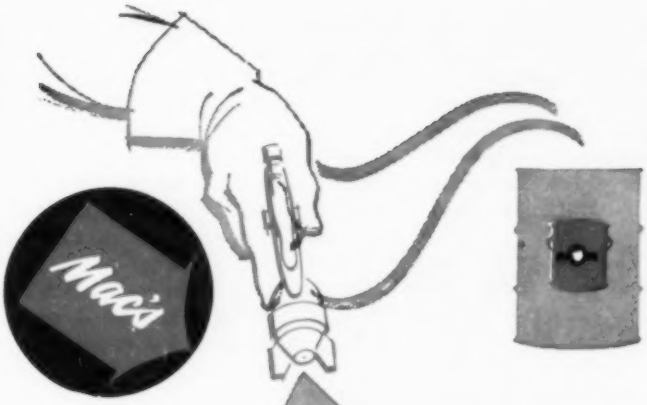
Lacquer Sealer; Wiping Glaze; Three Coats of Hot Lacquer

A 17% solids lacquer sealer is sprayed on at 50-lbs. atomizing pressure and 20-lbs. fluid pressure. The sealer is allowed to flash off (air dry) for ten minutes before it is force dried for 30 minutes at 100° F. and a 36% relative humidity. The sealer is sanded with No. 7/0 stearated sandpaper. This requires about ten minutes.

A glaze coat is sprayed at 25-lbs. atomizing pressure and 10-lbs. fluid pressure. It requires about 15 minutes to wipe the glaze and allow a short air dry period before the glaze is oven dried for 20 minutes at 120° F. and a 35% relative humidity. After a cooling period of 20 minutes, shading stain is then sprayed at an atomizing pressure of 40-lbs. and a fluid pressure of 10-lbs. The shading stain is allowed to air dry for 15 minutes while the pieces travel to the first lacquer coat booth.

We apply three coats of 24% solids high gloss lacquer. All three coats are identical. The lacquer passes through a hot water type of paint heater which is thermostatically controlled at 150° F. The material hose is enclosed within a larger hose between the exchanger and the spray gun so that hot water circulates around the material hose. This prevents any appreciable heat loss, therefore it is safe to say that the lacquer temperature at the spray gun is very close to 150° F.

Lacquer is sprayed at an atomizing pressure of 55-lbs. and a fluid pressure of 20-lbs. A flash off pe-



5-Gallon Can
at Drum Price

Order a 5-gal. can at drum price and Convince yourself.

Satin Finish Wooling Lacquers

These are ideal lacquers for use where a satin sheen finish with a smooth, silky feel is desired, without requiring a costly rubbing operation.

Their intrinsic and economical values are fully appreciated when used in place of the regular semi-flat lacquers, to produce the much desired satin, velvety finish.

Mac's Satin Finish Wooling Lacquers, if steel wooled only, or if steel wooled with wax using 3/0 or 4/0 steel wool, will produce a very smooth, silky, and scratchless finish that feels more silky than the regular satin finish lacquers. The steel wooling process is inexpensive and easily done.

Mac's Satin Finish Wooling Lacquers are made in different sheens which may be a flat comparable to a 20 sheen or as bright as a 75 sheen lacquer. They may also be used without steel wooling and will produce a fuller and more homogenous finish than the regular semi-flat lacquers.

Mac's Satin Finish Wooling Lacquers are available in water white light resistant, for use on white or pastel finishes, or in the regular lacquers for the darker shades such as mahogany, walnut, etc. The water white satin finish wooling lacquers are universal lacquers and may be used on both white and medium to dark finishes wherever space for storage is important.

When ordering, advise sheen desired and whether you want water white or regular satin sheen wooling lacquer.

"Eighty-four Years of Service"

The Lawrence-McFadden Co.

Headquarters for Fine Finishes Since 1875

7430 STATE ROAD **PHILADELPHIA 36, PA.**

For more data, circle 176 on colored card.

riod of 15 minutes is allowed before the lacquer is oven dried for 20 minutes at 110° F. and a 36% relative humidity. Between the first and second coats a cooling period of ten minutes is allowed; after the third coat is force dried, a cooling and air drying period of four hours is allowed.

At this point the pieces are removed from the conveyor and placed in a large storage room which has baffled exhaust vents, circulating fans, heaters that are thermostatically controlled to maintain a temperature of 125° F., and humidifiers which keep the air at 7% relative humidity. All furniture remains in this heated storage room overnight before it is moved to the rubbing room.

Use Non-Haze Rubbing Oil; Polish With Lambswool Disc

In the rubbing room there are two parallel lines, one for case goods, the other for drawers. Supply pipes that furnish compressed air to operate the portable rubbing machines are installed overhead instead of along the wall of the building. This keeps the slack length of air hose off the floor or side benches, and up and out of the way. There are four rubbing stations on each line. At the first station the finish is rubbed with No. 360 wet-or-dry sandpaper which is lubricated with a special non-haze rubbing oil. In the next three rubbing stations the finish is rubbed with portable machines, using, in turn, No. 400, 500 or 600 wet-or-dry sandpaper lubricated with the same rubbing oil. At the next station the finish is compounded with No. 5 compound, using a dry wool disc.

Finally, at the last station, a fish-eye resistant silicone polish is applied, and the mirror-like sheen is brought up by polishing with a lambswool disc. When the cases reach the end of this line the drawers have been similarly rubbed and polished, and drawer pulls have been installed. Final inspection follows—including, when or if necessary, minor touch-up repairs.

Applicator Gives Controlled Wet Film Thickness

A wet paint film applicator, which gives eight different readings off a single instrument, is available in two different models.

The precision Model No. 1 Wet Paint Film Applicator, which is used in conjunction with hiding power charts, will lay down a film 2-in. wide in any of eight thicknesses from .001-in. to .008-in. in increments of .001-in.

Model No. 2 will lay down a 2-in. wide film in any of eight thicknesses from 5 to 50 mils as follows: 5, 10, 15, 20, 25, 30, 40 and 50. This model can be used for checking latex films for toughness and flexibility.

In design the applicator is a hollow square. It has a separate path on each side. There are no adjustments to make on the device. A few drops of material are placed on the hollow square near the correct opening for the thickness desired. The applicator is then drawn over the chart and a uniform thickness of film is presented for observation and test.

For a free bulletin, write Precision Gage & Tool Co., 320 E. Third St., Dayton 2, Ohio.

For more data, circle 24 on colored card.

Cleaning & Finishing Machinery

A 2-page, 2-color bulletin describes and illustrates various types of power machines and processes used in the cleaning and painting of metal products. For a free copy, write Cincinnati Cleaning & Finishing Machinery Co., 2006 Hagman St., Cincinnati 41, Ohio.

For more data, circle 25 on colored card.

FIRST CLASS

Any way you look at it, "First Class" means the best there is. That's why we work hard to put this label on every Spruance Finish. For 52 years we have kept an ear tuned to the opinions of the men in industry who spray, brush, dip, rub, bake and inspect finishes. As a result, Spruance Finishes are scientifically formulated to apply easier, dry at desired speeds, give you "First Class" jobs with less re-do's and fewer headaches. Fortunately, these same factors contribute to more sales . . . extra customer satisfaction. If you aren't using Spruance Finishes now, perhaps a "trial run" would benefit you . . . and us. Let's talk it over soon.

Spruance

THE GILBERT SPRUANCE CO.
Philadelphia 34, Pa. • Winston-Salem, N.C.
Wood Finish Originals • Metal Finishes • Maintenance Paint Products

*fine finishes

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NOW DIRECT LABOR SAVINGS CAN BUY YOUR FINISHING DEPARTMENT A DeBURGH® CONVEYOR

IT'S A FACT! The reduction (up to 50% and more) of finishing room labor actually pays for a DeBurgh conveyorized finishing system in less than 18 months, then pays a like amount into your net profit column throughout the years. This — plus better quality control, resulting in a finer finish — makes the DeBurgh conveyor a self-amortizing investment of the highest order. Perhaps most important is that for the very first time in wood finishing, an accurate cost and production control tool is yours.

TERMS AVAILABLE

In the past, the custom-built features of an individualized conveyor system have always been a deterrent to financing. Now we are pleased to announce the availability of terms which will enable a furniture manufacturer to utilize his labor savings to make monthly payments — and still leave an increased net profit margin. Write for profit Booklet JG!

DeBURGH® CONVEYORIZED FINISHING SYSTEMS

10 So. Eleventh Ave. Evansville 4, Indiana

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MANUFACTURERS OF PROTECTIVE AND DECORATIVE FINISHES

ROCKFORD VARNISH

RV

ROCKFORD, ILLINOIS

NEW SLANT

Sure, our girl is tipped over a little to the left here, but it is only so she can get a different slant on you. We would like an opportunity to give you a new slant, too — a new look at your finishing operations, with a view to improving them if possible. Our experienced plant/laboratory team has come up with a lot of new angles from time to time, that have been useful to our customers in many ways. Perhaps we have something in view that is *just* what you need . . .

For more data, circle 179 on colored card.

TROUBLE SHOOTING

Production Finishing Problems

By F. Warren Porter

Finishes Technician & Quality Control Manager, Rheem Mfg. Co.*

ONE OF THE more ulcerous functions of a plant finishes technician is delving into the age old problem of the spontaneously developed condition wherein the plant finishes section has seemingly fallen apart at the seams. Usually a telephone call kicks the ball off with a frantic message to the effect that, "Everything on line No. 2 is coming out bad; 100% rejects; the boss is screaming about lost production; come and correct the condition or we will have to shut the line down and send the people home."

In the course of a normal work day, frequent routine corrections are made to satisfy minor defects. In circumstances such as those outlined above, there can be only one basic approach. Get cracking, and quick, but keep cool.

Trouble Shooter Needs to Know People; Be Tactful

When making entry into a caustic shut down condition it is necessary to have acquired some prior knowledge in the art of how to handle people in order to get at the root of the problem without wasting a lot of time in conversation. Without exception each person (workers, supervisors, general foremen, etc.), associated with the operation, will have a personal opinion of what the problem is, what caused it, and what should be done to correct it. These opinions are based on individual methods of reasoning and you just have to discount most of the conclusions—but politely and with tact.

On arrival at the "firing line" you will probably find a group or groups of people standing around talking about the shutdown problem. One or two of the more aggressive members of these groups will be throwing a lot of "fast decision" directions at the line workers in an attempt to get the line back on "stream" again. The finishes technician's approach from this point should be as follows.

Be as tactful as possible but as blunt as necessary, and block this time-consuming group discussion of the problem. Go directly to the people most closely associated with the work. These people will be the subsection foreman, spray painters and perhaps certain others. In short, the basic finish applicators. Benefiting from their close contact

*Linden, New Jersey.

On arrival you may find a group standing around talking about their shut-down problem; the more aggressive ones will be throwing a lot of fast decision directions at line workers.

with the operations through hour by hour, day by day work with the equipment and material, these "front line troops" can usually pin point the problem very quickly.

Men on Job Will Have Many Opinions

Remarks such as, "the paint has no body; the steel is dirty, rusty or greasy, coming out of the washer; the paint does not work as well as it did before we started on a new can after our coffee break; or the electrostatic field isn't pulling the hair on my arms the way it usually does"; these are the leads you are looking for.

Once again these interpretations are products of reasoning and thought expression. However, while they do not, in text book style, specifically spell out what is wrong, they point out causes and effects which are excellent clues toward directing your attention to the culprit that has the line shut down. These people will, while telling you what is wrong, immediately launch into their idea of corrective actions to take. The technician has asked for it; now he should listen to it—at any rate outwardly. Inwardly he should start forming a plan for fast corrective action.

Find Cause and Remedy by Process of Elimination

Trouble shooting and solving any kind of problem can be resolved into a very elementary and clear cut procedure, which can be stated simply as POE, that is, Process of Elimination. With each exposure and subsequent accumulation of experience, short cuts will be devel-

How to find out what's causing certain troubles in painting and finishing, and being tactful in dealing with the people concerned; examples: off color, poor hiding, low mar-resistance, orange peel.

oped to permit side stepping some phases of the POE plan. For a starter here is a suggested way to apply POE to a finishing problem:

1) What is the problem? Is it caused by or due to some human element? Equipment failure? Or defective material?

2) How to correct the problem? If it is in the human element, let's try demonstrating correct work techniques; and/or give verbal instructions about the proper corrective measures. Or perhaps it may be advisable to replace some less experienced workers with more skilled workers—at least temporarily.

If it's due to equipment failure let's repair the parts or equipment that need it; or replace certain parts or equipment.

If the trouble is caused by defective material, try making minor additions of corrective additives; or replacing unusuable material with freshly mixed material from storage stock.

3) Correct the problem by completing, one step at a time, the things that you decided were necessary to correct it. Try not to take more than one major step at a time. This will help isolate causes and effects for future reference.

4) Now consider what to do to prevent a recurrence of the problem. By being a "bull dog" with each problem, the basic cause for the shut-down can be established. Keep a log book with short notes on every problem—when it happened, why it happened, and what corrected it. Write a short note to the boss and the department supervisors involved, telling them what was found to be the trouble maker. This should always be done, even if the trouble originated in the realm of things controlled by the finishes technician. Use this approach, and the problems are out in the open where they can be seen —not lying back there hidden, waiting to sneak up again when least expected.

If a Procedure Sheet System is used and a change in procedure is indicated by the occurrence of this problem, get the change out immediately. And do not forget to tell the people on the second shift about it too. At this point you have worked out the equation: POE equals EOP. Process of Elimination equals End of Problem—this one, anyway.

The following is a list of some of the things that may be encountered when one is trouble-shooting finishing problems. Causes and recommendations for possible correction are also listed.

Problem: Discoloration of White Baking Enamel; Causes:

Some of the more likely causes, and what to check to find the probable or possible remedies are as follows: [*Continued on page 64*]

Is rust on precision parts a problem in your plating department?

FERLON REMOVES RUST WITHOUT HARMING METAL!

Wyandotte Representative Wm. Heinecke (left), and C. D. Roberts, Chief Chemist at A. O. Smith Corporation's Pacific Coast Works at Los Angeles, examine rust-free iron castings. A. O. Smith uses Wyandotte FERLON in soak tank — also adds it to the electrocleaner to enhance smut removal, improve detergency, prolong cleaner life.

THAT'S RIGHT! When damaging rust goes to work on steel parts, you can save time and replacement costs by using Wyandotte FERLON, alkaline derusting compound. That's because FERLON, unlike acids, removes rust quickly WITHOUT INJURY TO SOUND METAL —makes it ideal for use on expensive, close-tolerance machined parts!

For example, at A. O. Smith Corporation's Pacific Coast Works, a simple immersion in FERLON effectively removes heavy rust from large machined cast-iron parts. In addition, FERLON in the electrocleaner has resulted in much cleaner, smut-free castings. Cadmium plating is much brighter and of a higher quality.

Improve *your* plating by using FERLON for rust and smut removal. Call in your Wyandotte man, today, for a demonstration. Or write direct for complete details. *Wyandotte Chemicals Corporation, Wyandotte, Michigan. Also Los Nietos, California. Offices in principal cities.*

Wyandotte CHEMICALS

J. B. FORD DIVISION

The Best in Chemical Products for Metal Finishing

For more data, circle 180 on colored card.

1) OVERBAKING. Correction: Check oven heat and length of time in oven. Also, check instrument charts. Wrong charts can result in setting the oven heat higher than was specified without the operator realizing it. Check for conveyor stoppage, too.

2) FOULING OF OVEN. Check for possible introduction of chlorinated solvent vapors. (A stripping tank may be located near the oven.) Ammonia fumes from latex compounds will yellow white paints.

3) DIRTY OR RUSTY STEEL. Some oils used by steel mills are sulphonated. On aging these can be difficult to remove. A good alkaline cleaner with wetting agent will do the job here.

4) FILM THICKNESS. Too much paint (dry) will throw the work off standard. Too little paint (dry) can do the same thing. Set up good controls on wet film applications to stay out of trouble here.

Sticky or Tacky Paint; Causes and Remedies

1) DRIER ABSORPTION. Some red and black paints tend to absorb driers while in storage. If this seems apparent, check the paint against a control, under laboratory conditions. Advise supplier, so that suitable additives can be made to prevent this.

2) IMPROPER BAKING. Recheck charts on oven heat and length of time in oven, and any possible speed-up of the conveyor. Sometimes conveyors do not run fast enough to get parts to the production lines in time.

3) TOO MUCH PAINT. The heavier films will require more oven time or heat for a satisfactory baking. Check for double-coated reworks.

Off Color Matches; Causes And Suggested Remedies

1) CONTAMINATION. Check for improper cleaning of fluid lines; also, for dirty spray pot inserts.

2) IMPROPER MIXING. Material in the drum must be mixed for at least one hour with portable type mixers. Material in inserts should be stirred well before placing in spray pot.

3) UNSUITABLE SOLVENTS. Some solvents are stronger than others and their use can affect color dispersion. Always use the same strength solvents. There are fast and slow solvents of comparable strengths. Check on solvent KB factors (Kauri Butanol values) too. This can save the firm some cash.

4) FAULTY IDENTIFICATION. Make sure that all inserts and other types of containers are clearly marked as to the type of material in them, and when it was mixed for the line.

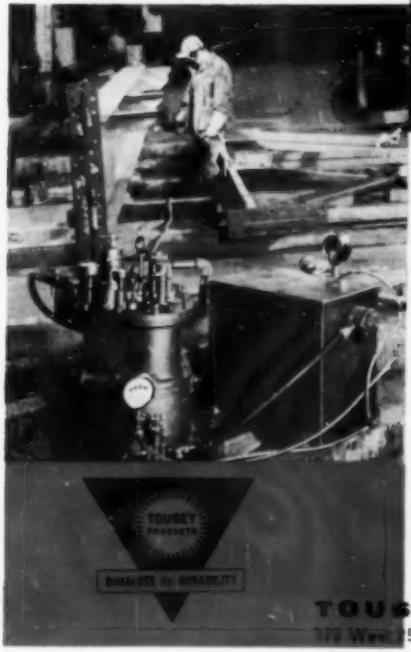
Poor Hiding of Paint; Causes And Suggested Remedies

1) OVER THINNING. Set up good controls on viscosity and do not ignore temperature changes between storage areas and the painting line.

2) INCOMPATIBILITY. Mixing of alkyds and varnish vehicles, where either melamine or urea formaldehydes are included in the alkyd formulation, will usually result in curdling or incompatability. Paint will "over-body" and require more thinning for spraying. It is a good idea to use one type or the other in your finishes, but not both.

[*Continued on page 102*]

TOUSEY OFFERS 2



DURACOTE®

For Spray Booth Operation and Bake Drying

Here is a top quality finish that produces a tough, durable surface going on smoothly, drying flawlessly — adding extra sales appeal to your products.

SPEED DURACOTE®

For Open Air Spraying and a Quick Dry

Take the excellent qualities above, add quick drying features of a dust free surface in 10 minutes or a tack free surface in 20 minutes and you have Tousey's Speed Duracote.

Try either of these top quality products in your finishing operation—they could affect substantial savings for you.

TOUSEY VARNISH COMPANY

[illegible] 5th Street • Chicago 16, Illinois • Victory 2-2200

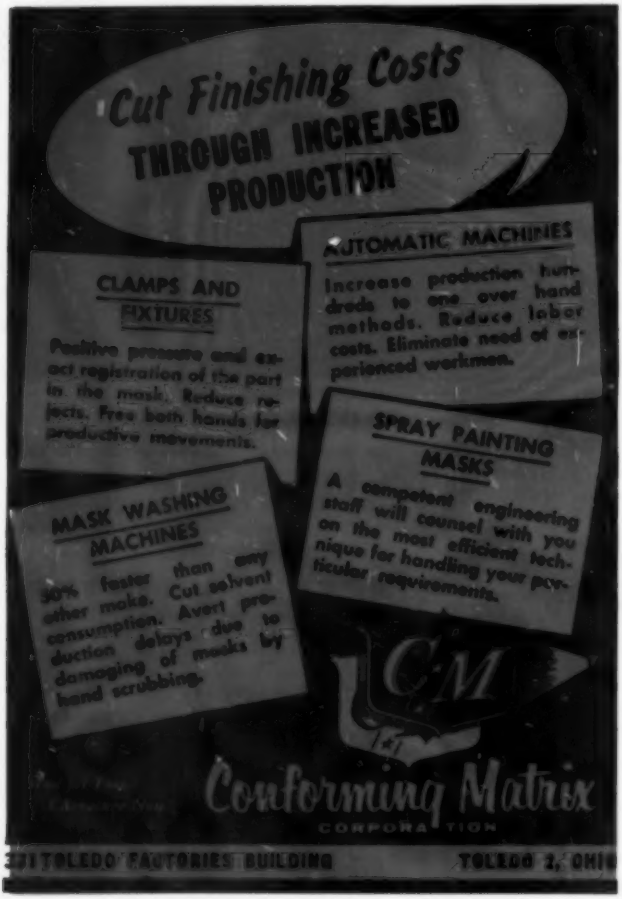
For more data, circle 181 on colored card.

Polychromatic Finishes Sparkle With Beauty

MANY USERS OF industrial finishes do not associate the attractive, glistening, metallic effect achieved on automobiles with their own product. In so doing they may be neglecting an opportunity to improve their finish in an essential respect: "eye appeal." The use of a metallic finish is particularly appropriate for articles intended for consumer use, such as home appliances, metal furniture, toys, etc.

A manufacturer of shock absorbers added a light blue metallic color to his line of replacement units. It increased his unit cost only a fraction of a cent; however, he found that customers preferred it to the conventional flat black finish.

Some people believe that metallic finishes are expensive, difficult to apply, or have a limited color or gloss range. Such is not the case.


Cut Finishing Costs
THROUGH INCREASED PRODUCTION
CLAMPS AND FIXTURES
Positive pressure and exact registration of the part in the mask. Reduce rejects. Free both hands for productive movements.
AUTOMATIC MACHINES
Increase production hundreds to one over hand methods. Reduce labor costs. Eliminate need of experienced workmen.
SPRAY PAINTING MASKS
A competent engineering staff will counsel with you on the most efficient technique for handling your particular requirements.
MASK WASHING MACHINES
30% faster than any other make. Cut solvent consumption. Avert production delays due to damaging of masks by hand scrubbing.
C-M
Conforming Matrix
CORPORATION
TOLEDO FACTORIES BUILDING
TOLEDO 2, OHIO

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A polychromatic finish is simply one in which small aluminum particles have been substituted for part of the color pigments. The vehicle composition may be varied to meet such requirements as hardness, toughness, light or heat resistance, or other properties. Air drying or baking types of polychromatic finishes, in any degree of gloss, may be obtained.

The color range is wide; it is limited only to the extent that yellow and orange are "out" because they give such a poor color contrast with the silvery aluminum that the result is displeasing. On

the other hand, it is possible to produce a metallic copper or brass effect which cannot be achieved by using pigments only. Frequently, pigments of a somewhat transparent nature are employed with aluminum flakes. This imparts a "depth" of color which produces a very pleasing effect.

When metallics are sprayed too "wet," they give a somewhat darker shade than a normal spray. This is due to the aluminum particles sinking into the wet film and robbing the finish of its desirable lightness and sparkle. This tendency, however, can be minimized by close color tolerances on the part of the supplier, and a close control of applied viscosity on the part of the user.

A satisfactory polychromatic effect cannot be obtained by dipping or flow coating since the larger aluminum particles drain in a non-uniform fashion. The usual method of application is by spraying. A high degree of success has been achieved by mechanical and electrostatic spraying. *—Forbes Quarterly Review (Forbes Finishes Division of P.P.G.Co.)*

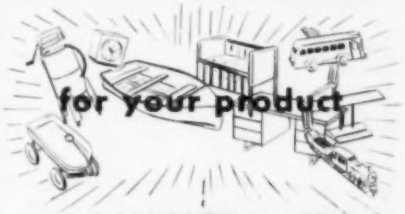
Will Sell Finishing Equipment

Hugh V. McGuire has been appointed assistant to the sales manager of Enthone, Inc., New Haven, Conn., subsidiary of American Smelting & Refining Co. He will specialize in the marketing of the metal finishing equipment and accessories manufactured and distributed by the equipment department of Enthone.

C. W. Mays; Magnus Chemical

Charles W. Mays has been appointed to the position of product engineer of the newly formed Industrial Hand Care division of Magnus Chemical Co., Inc., Garwood, N. J. He will work directly with Mr. Robert L. Kaiser, product manager, and will be responsible for the development and promotion of hand care products manufactured and sold by Magnus and its wholly owned subsidiary, the Larkin Soap Co.

NOW POTTER CUSTOM MAKES THINNERS



at SAVINGS to You

Are you getting the best thinner for your product? Potter will formulate specifically for your requirements. Just send sample of thinner now used and tell us changes wanted OR fill out form below and mail for FREE Sample.

Over 800 Satisfied Customers

SPECIAL OFFER:

Order a trial drum of your Potter thinner on a guaranteed basis. Try 5 gallons — if not completely satisfied return the balance of drum for FULL CREDIT.

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☐ YES, send FREE Sample, at no obligation.
☐ YES, we'll take your SPECIAL OFFER Trial Drum
The Product we make is_____
We use finishes on ☐ Metal ☐ Wood ☐ Auto ☐ Other_____
Application ☐ Spray ☐ Dip ☐ Cleaning ☐ Other_____
We want it to dry ☐ Fast ☐ Medium ☐ Slow
Gallons used per month_____
Name_____
Address_____
City_____ Zone___ State_____

POTTER Paint Co.
Cortland 1, New York
or Cambridge City 1, Indiana
Write to your nearest location

For more data, circle 226 on colored card.

Tomorrow's Products Tested Today

PREDETERMINATION of the life of protective coatings and finishes of all kinds is important to the manufacturer and to the buyer. The need arises to find some answer to questions such as "How long will this finish stand up in actual service" and "How can we determine the durability and permanence of this finish?"

The comparative merits of several finishes may be determined, to some degree, by artificial accelerated laboratory testing methods; but the final results of such testing do not always accurately reveal true service performance. It is difficult to establish and control conditions of accelerated laboratory tests to duplicate a particular type of service.

Artificial testing subjects finishes and coatings to conditions which do not always exist in actual performance. Photochemical changes cannot be duplicated, since little is known about solar radiation and the resultant effects on organic finishes.

The question that always remains is: "How long will this product stand up under actual use?" To obtain a good answer to these problems, one such testing laboratory is The South Florida Test Service, Inc., located at Miami, Florida, where actual tests for durability and service can be carried out.

The climate in southeastern Florida provides excellent corrosion, weathering and sunlight testing facilities which are naturally,

BODY BROS.
incorporated
MANUFACTURERS OF QUALITY INDUSTRIAL PAINTS
Bedford, Ohio

MORE THAN A PRODUCT . . .
A STANDARD OF EXCELLENCE

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not artificially, accelerated. As early as 1927 it was found that this area has a unique and constant climate conducive to rapid failures on all kinds of protective coatings and many other materials. The constancy of year round climatic conditions makes possible quick predetermination and reproducibility of tests for durability and permanency by actual exposure.

Once actual outdoor exposure tests are decided upon as being most satisfactory, the important problem is to determine where these exposures should be made. The short summer seasons in the average industrial and residential areas, located in northern latitudes, make outdoor exposure a very long-range program—too long for the tempo of modern industry. The practical value of exposing paints in southern Florida for tests as to performance has long been recognized by most of the leading firms in the United States.

This area, embracing Miami and lower Florida, has become the nation's proving ground where "weakling" and inferior formulations can be rapidly eliminated by actual test. Not only are organic finishes tested, but a wide range of materials and products in the fields of plastics, textiles, rubber, metals.—*E. D.*

R. N. Keppel Joins Prufcoat

Russell N. Keppel, formerly director and V.P. in charge of marketing for a large oil company, has joined Prufcoat Laboratories, Inc., Cambridge, Mass.

Prufcoat Laboratories is engaged in the development and manufacture of chemical resistant protective coatings for the chemical process, pulp and paper, Petroleum refining and petrochemical industries. Founded in 1939 it was one of the first companies to devote its efforts exclusively to specialized coatings for corrosion control purposes—a field which has undergone remarkable growth over the past decade.

GRANCO Flameless Gas Burning Systems

GRANCO

can design the job for the customer for the future . . .

Your products will GLOW when cured and dried with GRANCO flameless gas burning systems.

GRANCO builds Irradiant Grid flameless gas burner systems.
GRANCO builds industrial washers.
GRANCO builds direct, indirect and radiant ovens, dryers, furnaces.
GRANCO builds complete turn key systems.
GRANCO builds for the present and the future.
GRANCO has original ideas, initiative, ability to design and install any size, shape or style system—whether it be convection, radiation, radiant tube or otherwise.

Your Products will GLOW with GRANCO

Write for Bulletin

GRANCO INC. 317 32nd Street, S.W. • Grand Rapids 8, Michigan

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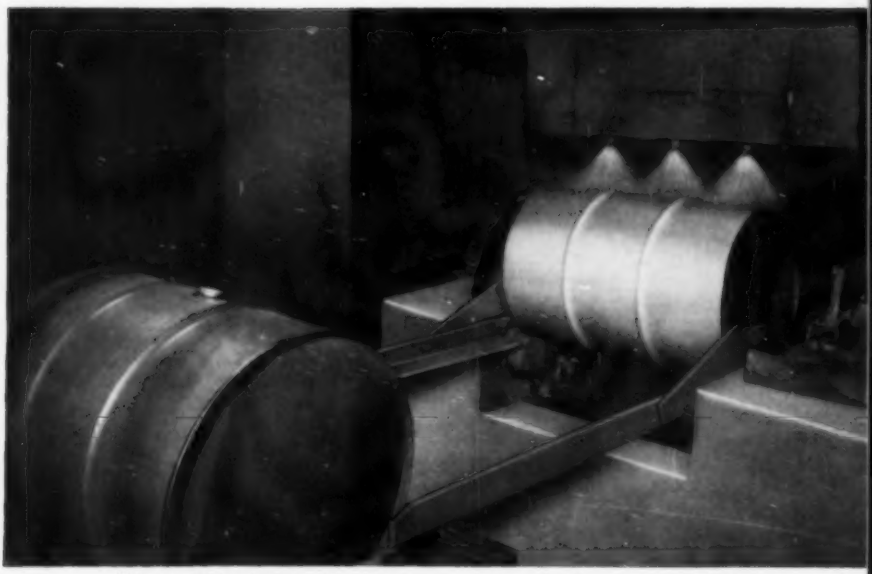


After metal treatment, drum bodies are automatically sprayed with drum enamel.

Du Pont Drum Enamels mean on the line, greater durability

Rolling out top-quality drums in quantity is a production-line challenge regularly met by *Du Pont Drum Enamels.* The line shown has a capacity of 600 55-gal. drums an hour, with drum enamels being applied directly to the steel surface after phosphate treatment.

Many drum makers use finishes specially formulated for them by Du Pont, and subjected to testing (and approval) in their own plant laboratories. Proper formulation makes only one coat necessary. Special finishes are also provided to drum manufacturers for insides of drums, to meet their customers' requirements for maximum chemical and reverse impact resistance.

Du Pont Drum Enamel is just one of the more than 12,000 Du Pont finish formulas serving industry today. They are readily adaptable to flow coating, roller coating, dip-tank finishing, hand spray,

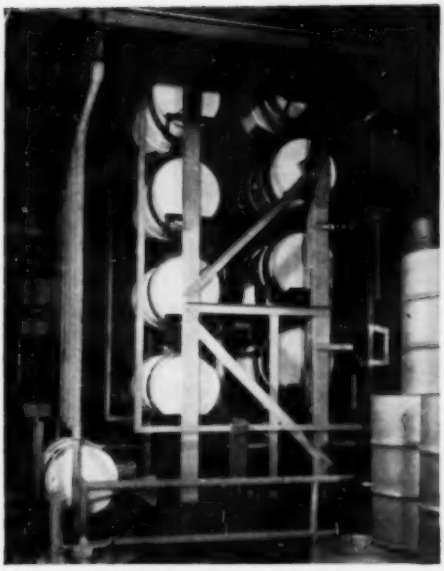
DU PONT

REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING...*THROUGH CHEMISTRY*

For more data, circ

nd spraying with drum enamel is method tilized for finishing the ends.



Baking oven has conveyor lift; after 15-minute bake at 275° F., drums come out at right.

Photographs courtesy U. S. Steel Products Division of U. S. Steel Corp.

op efficiency n service

ectrostatic or other automatic spray systms. In many cases, Du Pont helps delop and install these systems.

Du Pont's experience with all kinds of dustrial finishing problems can help nprove products, save time and money n the finish line. To draw on this experince for your own products and production, just write: E. I. du Pont de Nemours Co. (Inc.), Finishes Div., Wilmington , Delaware.

Trouble-free finishing means fewer rejects, facilitates continuous production.

Du Pont Industrial Finishes

Chemically engineered to do the job better

5 on colored card.

EDITORIALS

Why Their Finishing Is So Troublesome

★ Every paint company that sells industrial finishes has some customers who seem to have more than the average number of troubles with their finishing. These customers are usually small and their finishing departments may be poorly equipped. The personnel who do the finishing may not be well suited to the job for one reason or another.

The main difficulty in this type of organization seems to be that management regards finishing as *a necessary evil.* In other words the company is trying to do a job without the proper tools and with as little attention as possible. You can go only so far in this direction without getting into trouble—and plenty of it.

I recall one company that had only a small touch-up size spray gun. They ran into trouble when they tried to spray large panels. Another company had done little finishing in the past, spraying a few large expensive fabricated pieces. Then the firm obtained a contract for making and finishing a large number of small inexpensive pieces.

The finishing was a sad thing to see. The sprayman, who was really an inexperienced factory hand, sprayed each piece separately, rotating it as best he could by hand. Not even a turntable was available. The spray gun was put down after each piece was finished. Even with the relatively inexpensive rural labor used, I don't see how the company could make a profit. With a little thought, this finishing operation could have been speeded up to five times faster.

Sometimes a company that is generally progressive and efficient in other departments will be neglectful of its painting or finishing department. It is not always necessary for management to give a great deal of attention to the finishing department, or to spend a lot of money on it. I have seen a number of companies where just a little effort and equipment would have made a wonderful difference; and it would have easily paid for itself in the long run.—*George Grant.*

★ *Guest Editorial . . . Many readers can write an excellent editorial—two or three paragraphs that present a timely suggestion or valuable idea which will stimulate thought on a live subject. The Editor welcomes guest editorials and pays for those used.*

Customer Satisfaction; Real Friendship

★ Assuming that all salesmen and their companies are competent, there is still a big difference in results. Where is this difference? A company of any stature or standing can and does produce materials that will meet definite requirements, and most salesmen can "peddle" this merchandise—industrial surface coatings.

Let's observe and analyze the activity of any outstanding salesman; we find certain things in common

Do you need better ways to strip paint?

When tough finishes resist your present stripping methods, you may need help on some of these problems:

1. How to strip oil-base paints . . . synthetic enamels . . . alkali-resistant plastics . . . resin-base paints . . . japans . . . wrinkle finishes . . . nitrocellulose lacquers . . . alkyds . . . phenolics . . . ureas.
2. How to strip zinc chromate primers without etching aluminum.
3. How to strip paint from vertical surfaces and undersurfaces where thin-bodied strippers run off without doing their work.
4. How to strip metal parts that are too large to be soaked in tanks.
5. How to strip paint, pigment residues, phosphate coatings and rust in one operation.
6. How to strip paint from rejects, conveyor chains, racks and hooks in continuous operation.

Oakite has more than a dozen fine stripping materials for these and similar jobs.

FREE For information on problems 1, 2, 3 and 4 ask for a copy of "How to strip paint". For more on problems 5 and 6 ask for "Here's the best shortcut in the field of organic finishing". Write to Oakite Products, Inc., 20 Rector St., New York 6, N. Y.

OAKITE

SCIENCE

Export Division Cable Address: Oakite

Technical Service Representatives in Principal Cities of U. S. and Canada

For more data, circle 186 on colored card.

with an ordinary salesman; but we also see the "extra" which he puts into his work. The things in common are the ability to grasp a problem, to assay it, to transmit it to his factory and get the subsequent delivery of material on time.

Now comes the truly important "extra." The real salesman is looking ahead for the paying repeat business; he gives strict attention to the situation by making certain that the customer gets the most satisfaction out of the material. He checks on process procedure; he suggests economically feasible improvements; in short, he uses his mind and his imagination. The objectives of the customer and the salesman are identical —the best possible use out of the coating material or solvent. These tactics make a customer a friend, one in whom you are vitally interested—and this is a vital matter to both the customer and the salesman. It's nice to be friends.—*O. W.*

Customer's Complaint Is An Opportunity for You

★ Anyone handling paint products is bound to have grief at times. Do not let it get you down; there are days when you feel that you should have stayed home in bed. Several complaints develop all at once. Just stop and compare complaints versus sales. Make this comparison in any way you wish—against dollar volume, gallonage, number of orders or number of customers, and you will be surprised how small it is percentagewise.

Actually it is surprising that there are not more complaints when you consider how little control the manufacturer has at the point of use.

A complaint can become either a liability or an asset. Make it an asset by taking care of it promptly. Generally it is more important than a sale. As soon as a complaint is entered get right on it. Now you become a service man—a detective observing conditions and figuring out just what has happened. Seldom is the fault malicious. Almost never is a material deliberately tampered with. Keep that in mind, because invariably it is inadvertent or just plain carelessness.

First check every factor, no matter how small or inconsequential it may seem to be. Determine if there has been any deviation from normal procedure. Weigh the possibilities and figure out the effects of every step. Needless to say, you should check the full-bodied material against the factory-retained sample. Finally, you arrive at a conclusion. If it is the factory's fault, assume it. If it develops that the customer is at fault, here is where you can make an asset out of the trouble.

Make it clear to the customer that you are there to help him, not to criticize anyone for a mistake. Be considerate and tactful. Point out the error, and demonstrate that all you are trying to do is to prevent a recurrence. You are trying to help him get the best possible use and benefit out of your material and to help him on his job. In the case of "policy adjustments," bring out the true responsibility (the customer's not the manufacturer's). If this be done correctly, you can make a lasting friend by an understanding and sensible handling of a complaint.—*C. Brown.*

Egyptian Lacquer Men Changed

Mr. William H. McLeod has been made Assistant General Manager of The Egyptian Lacquer Mfg. Co.'s South Kearny, N. J. plant. Mr. McLeod's former position as purchasing agent is now filled by Mr. Robert E. Mellor.

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LETTERS from READERS

Hard Oil Finish

In February 1958 issue, page 78, Mr. A. B. Rossner discussed a Hard Oil Finish which he claims is excellent. We are in need of such a finish and would welcome any information you could give us as to a source of supply or formula.—*H. & W.*

In a letter we are naming several firms who have told us they can supply the oil for this finish.—*Editor.*

Flow Coating Literature

Would you please send me any literature you might have on flow-coat painting?—*B. R. H.*

We are sending tear sheets of some of the many articles we have published on this subject. An excellent book on this is available in our book department. It is written by E. A. Zahn, and sells for $8.00.—*Editor.*

We Make Heat-Resistant Strippable Coatings

In Nov. issue, pages 88 and 90, M. & P. requests information on heat-resistant strippable coatings. We manufacture a number of products for this purpose and can meet all of the requirements mentioned.—*Guard Coatings Corp.*

We make a variety of strippable coatings and we have one that meets all of the requirements outlined by "M. & P.". However, "M. & P." will probably find it a lot more economical if they remove the spilled Epoxy with "Epoxystrip." We are sure a sample of "Epoxystrip" will prove our point —and another tough stripping problem will be solved.—*Beck Equipment.*

We believe we have the product that will solve the problem of "M. & P."—*Rexton Finishes, Inc.*

Who Makes "Cermatex"?

One of my customers is looking for a product called "Cermatex." This is a clear coating, in the varnish category. However, it is not a true varnish, according to information received. It could be a catalytic type clear resin coating.

Any information you may have concerning this product, its place of manufacture, etc., will be appreciated.—*P. & V. W.*

In our directories, including the Thomas Register of American Manufacturers and the Trade-Mark Directory of the National Paint, Varnish & Lacquer Assn., we do not find a product called "Cermatex." Can some reader help us on this?—*Editor.*

We Have Tumbling Barrels

We notice that quite often you have information or questions concerning tumbling barrels and tumbling barrel processes. For example, we notice in the Nov. issue, that someone inquires about where they can buy upright tumbling barrels. We make such units and would appreciate it if you would

let me know the full name and address of this company, so that we may send them our brochure.—*Globe Barrel Finishing Equipment, Division of Casalbi Co., Jackson, Mich.*

"Okay, I'll take your word for it that you didn't spray my tongue with flock, but boy that must have been an awfully good party we were at last night then!"

Want to Conveyorize

We have a customer who manufactures metal wall cabinets, undersink cabinets, wardrobes of various dimensions, who want to conveyorize their spray booths and ovens. Will you please recommend the most suitable conveyor, flat bed or monorail, for this operation?—*L. W. Co.*

We believe that most of the concerns who manufacture metal products of this type use overhead monorail conveyors. In a letter we are submitting names and addresses of some of them.—*Editor.*

Fish-Eye Killer

I am interested in the "fish-eye-killer," as mentioned in *Industrial Finishing*, January 1956 issue, page 98. Could you please let me know the name of the manufacturer?—*Dr. A. K., Aschaw, Germany.*

Try Marson Corp., Revere 51, Mass., U.S.A.—*Editor.*

Heat Resistant Paint

In Sept. 1958 issue, page 76, there is a letter asking about an aluminum paint which will take 1500° to 2000° F. Please let us have information as to where this material may be purchased.—*A. E. P. S. Corp.*

We have such a tested product and would appreciate receiving the names and addresses of anyone wishing to use this type of finish.—*Reliance Varnish Co., Inc.*

We wish to be included in your list of possible suppliers of muffler and tail pipe paint, which can withstand 1500° to 2000° F. Our company has supplied this coating for the past two years to several aircraft companies. —*J. Landau & Co., Inc.*

Industrial Painting in Far Away Countries

I have recently returned from my trip around the world, visiting my licensees. I undertook to observe and make a study of painting techniques in the various countries. I was even planning to write an article on the subject. However, I had a big surprise waiting for me. It is hard for us Americans to appreciate how highly we are advanced in industrial tech-

nique. It is only when you personally make a tour of countries like I visited in Asia that it registers forcefully.

Even in highly industrialized countries like Japan, the president of one of the large paint companies told me that the paint consumption per capita in Japan was one-tenth the paint consumption in the United States. Incidentally, Japan and the Philippines are about the only two in the Asiatic countries where you can find modern painting techniques employed. But in countries like Thialand, Burma, Pakistan, etc., it is amazing when you look around to see that painting is virtually non-existent.

The situation in Europe is quite different. The volume of paint consumption is not as great as in our country, but overall efficiency is equal to ours. In fact, some of the most beautiful finishes I ever saw were in Europe.—*James A. Bede, President of Bede International Development Co.*

Who Makes "Qualite"

We would appreciate knowing who makes "Qualite" finish. We are not sure whether this is a new product made by Masonite, or whether it is a finish for Masonite hardboard.—*D. H. L.*

We do not find a material named "Qualite" in any of our trade-mark directories or product directories. Can some reader help us on this?—*Editor.*

Particle Board Finishing

We noticed, in December issue, page 76, that G. S. has requested a copy of the particle board article that appeared in July issue of *Industrial Finishing Magazine.*

The Reliance Varnish Co. has had considerable experience in the filling of particle board mechanically. We have recently made a public demonstration of this process in Louisville, Kentucky. For anyone interested in the process, we offer our services and literature on this subject.—*Reliance Varnish Co.*

"I liked the part where he lost everything he had and then started a finishing shop in an old garage and made ten million dollars the first year and bought back his steel mill."

Tumble Finishing

We have been lent a number of *Industrial Finishing* magazines by the "Dulux" distributors in this city (Christchurch, New Zealand) after making inquiries from them about tumble finishing and sanding. In the April 1955 copy, on page 56, there is an article, "Finishing Wood Turnings in a Finishing Barrel," by Evan C. Hinkley, which interested us, and we are wondering if this technique could be adapted to our particular

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needs. No one in Christchurch appears to know anything about this method of finishing, and since a lot of our production time is involved in this, any method that will save time would be welcomed.

The particular articles we wish to finish by this method are wooden "links" for sewing baskets. Each basket needs four links 7½x¾x½-in., and eight links 4¼x¾x½-in. They are half rounded on each end, and have either two or three ⅛-in. blind holes for screws drilled in one face. At present, after machining, each link is belt sanded, dusted and spring wires are inserted into two of the blind holes. They are then given a coat of sanding sealer, scuffed, and a final coat of lacquer. As you can realize, with 12 links per basket, this method takes an enormous amount of time.

We have heard of a method of tumble sanding also, in which the wooden parts are placed in a barrel with an abrasive, and sanded mechanically, after which they are tumble finished. If you can give us any information on this technique, we would be very pleased.

Naturally, the finishing materials obtainable in America are not the same as those manufactured here, but if we can get the correct technique, our local Dulux distributor is prepared to help us with the sealers and lacquers. We are making arrangements to subscribe to your magazine, and hope to gain a lot of valuable information from it.—*M. Products.*

We are not sure whether tumble finishing will work satisfactorily on the parts you describe. Best way is to try it and see.

Two companies in this country that manufacture tumbling barrels or machines, and have considerable technical information on the subject, are:

Tumb-L-Matic, Inc., St. Mary's St., Stamford, Conn., and Lupoline Automatic Polishing Equipment Corp., 99-111 Columbus Ave., Tuckahoe, N. Y.

We believe this tumbling process can also be used in connection with small scraps of sandpaper to smooth off rough edges of wood turnings.—*Editor.*

"See what I mean now about the continual, wasteful overspray that goes on here all of the time."

Crackle Finish for Al.

In a recent issue of I. F., in the Letters from Readers section, there was an inquiry about a manufacturer who could supply crackle finish paint suitable to cover aluminum castings. Your reply stated that you were sending him a letter naming several sources of supply.

We would appreciate having this information, too.—*L. R. Corp.*

Information supplied.—*Editor.*

IBM improves its paint finishing using sprayed textured vinyl

Unichrome Coating 6400, a new, spray applied, textured vinyl finish, has greatly improved the quality of machine covers for IBM's Data Processing equipment. It provides much longer life in service due to its increased scratch and mar resistance. Rejects from in-transit damage and material handling have been sharply reduced. Savings, particularly in refinishing, have been accomplished by these improved physical properties.

Available in a variety of colors, Unichrome Coating 6400 delivers a handsome leather-like finish with less complications and cost than obtained by use of laminated vinyl.

Films range from 8 to 20 mils in thickness and will outwear ordinary textured enamels by 10 to 1. Send for bulletin. Write Metal & Thermit Corp., Rahway, N. J.

METAL & THERMIT
CORPORATION

For more data, circle 189 on colored card.

QUESTIONS and ANSWERS

Cost of Graining

We would appreciate receiving any information you can furnish with regard to the finishing cost per square foot on graining of metal pieces; for example, window frames. In other words, taking flat stock, priming, graining and finish coating it prior to forming.—*C. P. I.*

Your inquiry suggests that this is a new project, that no previous graining on metal has been attempted. Unfortunately, this is a question on which it is impossible to deal in anything more than generalities.

Like any other finishing process, it can be done the hard way, with consequent high costs; or, by taking advantage of every modern technique, graining need cost no more than any other finish.

For instance, starting from scratch without equipment, a very fine graining can be applied by decalcomanias. The method is not cheap, but is not prohibitively expensive if low-priced labor is available.

Another method, which requires a modest investment, is graining with a hand roller. The cost of the roller and an etched graining plate will have to be amortized; and the application requires some skill, but this method is perfectly satisfactory for small production or pieces.

On the other hand, there is no other finishing system that lends itself more readily to complete automation than graining, with consequent economy of costs. Prices of graining machines depend on many factors, such as size, speed, etc. All are fairly expensive, but this is of small concern if production warrants the investment. In addition to the graining machine, efficiency can be improved through conveyors and fast ovens—again if production justifies the expenditure.

Incidentally, there is an excellent article on "Production Wood Graining" by Frederick Simmons in the October issue of this magazine. This same issue also has numerous ads by suppliers of graining equipment and materials.—*G. A. Conrad.*

Dust on Wet Paint; Our Problem

We have a dust problem. All of our products are spray coated with enamel, and it is between the spray booth and the oven where dust particles settle on the wet enamel.

Sometime ago we saw an article which suggested enclosing the conveyor between the spray booth and the oven to prevent dust from contacting the freshly coated parts. We built a tunnel of plywood panels between the spray booth and oven, but this failed to solve our problem. We have even sprayed the inside of the tunnel with a slow drying varnish, one that remains tacky for a month or two. The tacky surface catches and holds the dust particles fairly well.

We would like to find a more practical, trouble-free solution to this

problem. Now the inside of the tunnel must be sprayed about every two months, and toward the end of that period, just before recoating the tunnel, dust particles begin to appear on the wet finish. Could you offer any suggestions?—*G. L. Co.*

Have you found out where the dust originates? Is the dust produced in your plant, perhaps from a sanding or grinding operation, or from poor housekeeping, dirt in corners, under low machines or conveyors, or are overcrowded conditions causing parts, work holders, etc., to be stacked up, thereby preventing thorough cleaning? The first thing to do is to eliminate the source of the dust if possible—or at least, reduce the volume of dust to a negligible quantity.

Secondly, your present tunnel (made of plywood) probably adds to rather than solves your dust problem. A tunnel built of plywood panels cannot be too tight in construction. Between your spray booth and oven exhaust systems, you may be pulling in all available dust particles through every joint, crack or opening in the plywood tunnel and circulating the dust over the painted parts.

Replace your plywood tunnel with one made of tight fitting metal panels, and enclose the spray booth. Then pressurize both the spray booth enclosure and the tunnel. This can be done by forcing a greater volume of warm, clean filtered air into the enclosed area than the volume of air that is being withdrawn by the exhaust fans. Now the former action is reversed. Instead of drawing dust into the enclosed area, any particles of dust in the area will be forced out through openings or construction faults.

Even though you pressurize this area, it would still be a good idea to find and remove the main sources of dust, if possible.—*J. Y.*

Viscosity Cup Readings

In searching literature for a viscosity conversion table between the No. 4 Ford Cup and the No. 2 Zahn Cup, I have found one prepared by a major finishing material supplier and one in an article, "Viscosity Measurements," by Edward Berberian published in the April 1957 issue of this magazine. While these two tables agree very closely, I have not been able to reproduce them with our materials (clear nitrocellulose lacquers).

No. 4 Ford Cup	No. 2 Zahn Cup
Seconds	Seconds
16	25
20	29
24	33
30	40
35	45

Using the No. 4 Ford Cup readings as a reference, the No. 2 Zahn Cup readings are constantly 4 to 12 seconds lower than indicated by either table. To get a range, the viscosities of the materials were varied by heating without adding thinner, and by thinning while holding the temperature constant at 77° F. plus or minus 2°. In both instances my conversion table did not coincide with those published.

Obviously, I have overlooked something, but I do not know what it is. Could you help me?—*N. F. B.*

Conversion charts and graphs are notoriously inaccurate, especially when comparing cups of widely differing size and design. In the case of the Ford No. 4 and the Zahn No. 2, the difference is so great that no reliance should be placed on conversion. All cups are subject to variations from true viscosity due to specific gravity, adhesion of the material, etc. The best system is to determine the most

satisfactory reading on the instrument you find convenient, and then try to maintain that as closely as possible at all times.

However, since you claim a variation of 4 to 12 seconds consistently lower on the Zahn No. 2 cup, there might be something wrong.

The No. 4 Ford cup is a standard in the paint industry. There are, however, several things which can affect its accuracy: First, any obstruction or damage to the orifice will increase the reading. Second, it should be set up level in some holding device. Third, it should be filled to overflowing and the surface levelled with a straight edge. Fourth, it is a heavy cup and will quickly lower the temperature of the liquid unless it too is at the test temperature. Fifth, it must be cleaned after each reading.

The Zahn cup is a favorite among many finishers because of its convenience. It is the only device that can be left in the material while the material is being thinned or brought up to temperature. It does not have to be cleaned each time a reading is taken, and it could be handled by a one-armed man.

However, since it is a small cup, it has a greater possibility for error. This can also be complicated, to some extent, by the run-off of the material on the outside of the cup. Also there can be some hesitation in withdrawing it, when attempting to start timing with the withdrawal of the cup bottom. I prefer to bring the rim near the surface of the liquid; then quickly lift it as I start the stop watch. And, since the Zahn cup is so easy, I make it the best out of three readings.

Since an error of 12 seconds might be consistent with a reading taken on a Zahn No. 3 cup, could you possibly have the wrong cup? A Zahn No. 2

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cup has an orifice 0.108-in., which can be gauged by inserting a No. 36 (.1065) wire gauge drill; the Zahn No. 3 cup has an orifice of 0.148 inch which can be gauged by the insertion of a No. 26 (.147) drill.

Finally, I have found the figures you refer to a trifle higher than my own results. Testing two lacquers, I find a 25-second viscosity on the No. 4 Ford reads 30 seconds on the No. 2 Zahn, while a 30-second material on the No. 4 Ford comes to 36 seconds on the No. 2 Zahn.—*G. A. C.*

It appears to me that one of your two viscosimeters is off-calibration and needs adjustment or replacement. It is probably the Zahn cup, in view of the thin orifice metal and light weight construction. This is not at all uncommon. The Zahn cup was originally designed as an on-the-job convenience rather than an exacting laboratory study instrument. The orifice in the Zahn cup can be tightened slightly, by using a ½-in. steel ball on the inside and one on the outside, and tapping them together until the reading coincides with that specified on the Interchemical conversion table. If this is not the table that you have been using, an Interchemical viscosity conversion wheel can be obtained from Gardner Laboratory, P. O. Box 5728-I, Bethesda 14, Md.

If this suggestion is not entirely satisfactory to you, please do not hesitate to contact me again at any time. I agree that accurate viscosity control of mixed lacquers is a most important item.—*E. A. Zahn.*

Dr. Lee B. Storms Dies

Dr. Lee Storms, 42, director of research at Red Spot Paint & Varnish Co., Evansville, Indiana, died in a Cairo, Ill. hospital Monday, Dec. 22. He was stricken by a heart attack while with a hunting party. Survivors include his wife and a son.

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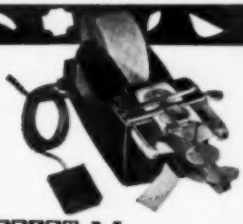

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Cleaning Those Small Flat Pieces of Metal

In Nov. issue, page 76, R. E. writes to find out how to clean small flat pieces of metal. Our product Remkleen WS will answer his problem with no more involvement than a quick dip of these parts into Remkleen WS for complete removal of the oil.—*R. & E. Martin (Industrial Chemicals and Products).*

We notice that R. E. has a problem with small flat stainless steel parts measuring 1/32-in. thick by 3/32-in. wide by 1¼-in. long. We appreciate that your answer to him is a fine solution to his problem. But may we suggest the consideration of a vapor degreaser.

Some of the advantages of a vapor degreaser would be one time handling, a short, fast process time and completely dry parts. If the parts tend to adhere to each other due to oil, we suggest a rotating basket to revolve the parts in the solvent to accelerate the degreasing action; this will also release all trapped solvent. These rotating baskets have a very slow rotating action and can consequently be used without danger of excessive scratching—except, of course, for very finely finished work.

Vapor degreasers may be had in various standard sizes. They range in size from small laboratory models to large heavy duty production models up to 25-ft. long by 8-ft. wide.—*G. S. Blakeslee Co. (metal parts washers).*

Time Zone Map Free

A map showing standard time zones of the United States and Canada is offered free by Ohio Seamless Tube Division of Copperweld Steel Co., Shelby, Ohio. Printed in three colors, on 8½ x 11-in. card, the map may be easily displayed on wall or desk top. Requests should be made on company letterhead.

Heat Circulation to Prevent Rusting

WHAT KIND OF rust problem do you have in your plant? Does stored sheet steel rust before it can be worked into parts? Do you stock pre-cleaned, fabricated parts or sub-assemblies for later painting, and do these parts accumulate rust before they can be painted?

Rust will form on metal, even in a protected storage room, due to condensation. This is caused by moisture-laden air coming in contact with cold metal surfaces. Condensation usually takes place during the early morning hours.. ..following sunrise. Moist outside air is warmed, enters the storage room and contacts the metal which is colder than the air. The dew point of the air is higher than the metal surface temperature, so moisture is condensed. Results: rust. This may happen at any time of the day during humid weather.

The solution to this problem is to keep the inside temperature of the storage room above the dew point of the air. Of equal importance is that the area must be heated evenly, with the heated air being circulated constantly so there will be no local cold spots.

Heating the air that enters the storage room to lower its relative humidity is not sufficient, because the dew point remains unchanged and condensation will form where this air contacts the cooler metal surfaces. If the storage room and the sheet steel or fabricated metal parts are

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constantly kept at temperatures equal to or above that of the air entering the storage, no surfaces will rust.

One dew point control system includes an overhead revolving heater unit which discharges warm air downward over the stored steel or parts and circulates warm air in and around the metal to prevent it from becoming too cold. A differential type thermometer, with indoor and outdoor remote bulbs, is set to maintain about 15° higher temperature inside the room than outside. This complete system will automatically maintain proper metal storage conditions to prevent rust from forming.—*C. A.*

Acknowledgment: Information for this article supplied by L. J. Wing Mfg. Co., Linden, N. J.

Airless Spray Folder

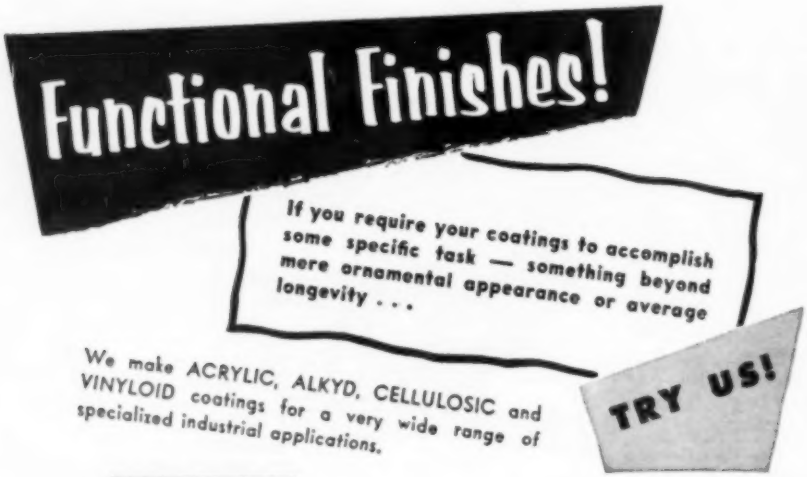
A 4-page illustrated folder 8½x11-in., answers many questions about airless spray painting, for example, what is airless spray coating, how is it accomplished, what pressures and temperatures are required, what are the advantages, why recirculate, why use heat, and how does the Nordson airless system function. Illustrations show the equipment and accessories. Nordson's guarantee is also given and explained.

For more data, circle 29 on colored card.

Rust Index of United States

A Rust Index of the United States, listing the different rates at which metal rusts for each of 523 U. S. cities throughout the country, has been published by the Rust-Oleum Corp., Evanston, Illinois. Rates vary from three to 15 years.

Copies of the Rust Index may be obtained by writing on your letterhead to the Rust-Oleum Corp., 2799 Oakton St., Evanston, Illinois.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Paint Can Labels

THERE IS NOT much room for originality or imagination for a paint manufacturer in the matter of containers; they are pretty much alike. But when it comes to labels, there is room for some planning.

The law requires certain things to be printed on a paint label. After that it can be simply a piece of paper or a thing of beauty. Have you ever noticed how some labels seem to proclaim quality, without your having to read a word? And while some expense can be involved in design, the cost differential between cheap and quality labels is so trifling in comparison to the value of the contents, that it is surprising that any paint manufacturer considers it.

Don't think for a minute that labels don't count. A small paint manufacturer of our acquaintance found sales soaring when he switched to a well - designed quality label. Later, through a mistaken order, some of the old labels were bought and an attempt was made to use them. When sales began to sag again, a rush order was put in for the new labels.

Labels, to men buyers, bespeak the manufacturer's pride in his products. They are doubly important where women are involved. However, the best label can be ruined by careless application. In fact, between the two, I think I would give preference to any label neatly in place, rather than one wrinkled or set at a crazy angle, or smeared with glue.—*K. M.*

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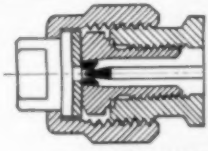

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Here's the gun designed in detail for better, trouble-free performance. Needle cleans seat orifice automatically. For use at pressures from 400 to 2,000 psi. Complete choice of interchangeable orifice tips in all spray patterns, capacities and materials.

SPRAYING SYSTEMS CO.
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FOR INFORMATION WRITE FOR BULLETIN 95

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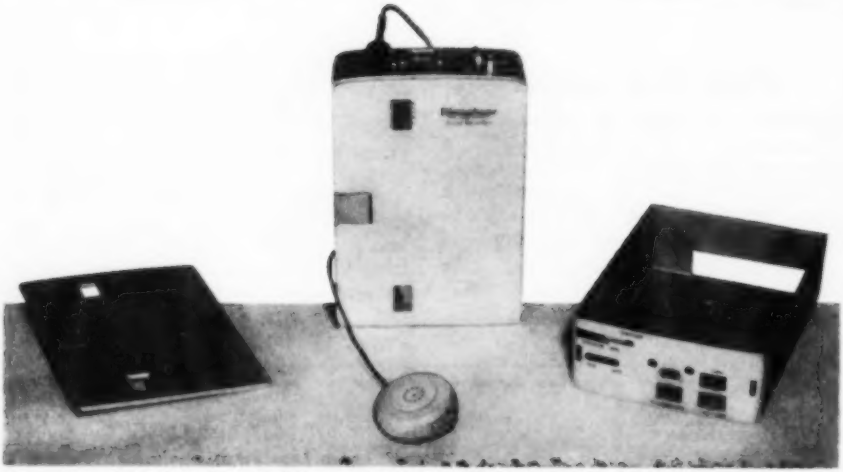


Magnesium die cast cover (left), complete Dictet Recorder, and the die-cast shell or case.

DICTAPHONE PRODUCTS Receive a Durable Finish

By Charles Ecklund, Director of Manufacturing
Dictaphone Corporation, Bridgeport, Connecticut

ELECTRICALLY and mechanically, Dictaphone products are known world-wide for their dependability. But in addition to functioning well in service, desk recording machines, transcribers and portable recorders must also look well. A shabby exterior finish can often undermine customer confidence in a product. With appearance so critical, the finish, therefore, must match the mechanism in performance.

If, for example, a customer has strong perspiration which erodes the finish, he is not so much interested in his body chemistry as he is with why the cover of his Dictet Recorder wore so badly in a short time. This is a good case in point, for such problems and others plagued us only a short time ago.

Failure of Former Finish Taught Us a Lesson

The Dictet is a portable recorder housed in a magnesium die cast case and cover. In the first model, both interior and exterior were first prime coated, sprayed with aluminum and finished with a clear plastic top coat. When the top coats were baked, the aluminum finish turned yellow.

Apart from this discoloration, we had other troubles. The top coat did not measure up to our rigid quality control standards, which include tests for abrasion, impact, gloss, pencil hardness, and also a humidity chamber check. The finished part was not acceptable.

Fixing the blame wasn't easy. Primer, aluminum and clear were purchased from different suppliers, each of whom blamed the others for the failures. If anything, this situation taught us a valuable lesson—to make sure that all coatings are compatible and to buy them from a single supplier.

Ever since June 1957, we have been using one type of Epon* resin for primer, aluminum and clear. The three coatings are formulated by one company in our state (Connecticut) with a baking system in which both resin and curing agent are pre-mixed. Shelf stability therefore is indefinite.

Before they were placed on the production line, the three epoxy coatings were thoroughly checked. They subsequently proved superior to any other type of coating we had tested for resistance to chemicals, abrasion and impact. The cured coating has an exceptional hardness which seems to increase with aging.

Production Techniques; Cleaning; Surface Treating

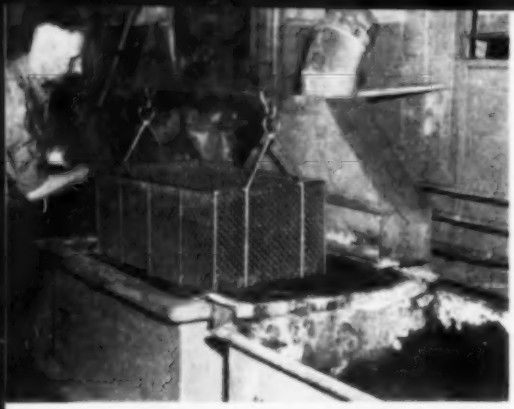
When cases and covers arrive from the fabricating department they are first degreased before going through the Iridite process. The latter consists of a chromic acid pickle, cold water rinse, hydrofluoric acid dip, another cold water rinse, a second chromic acid pickle and a final rinse. The entire operation, for one basket load of work, takes ten minutes. Parts are then placed in an oven to dry for at least 20 minutes, and allowed to cool off at room temperature.

Prime Coats; Viscosity; Spray Pressure; Baking Heat

The primer is thinned to a spraying viscosity of 27 seconds, as measured with a No. 2 Zahn cup. The clear top coat is thinned to a viscosity of 25 to 27 seconds with the same cup. The aluminum

Lettering and numerals are printed in red by silk screen process at this station before the final clear coat is applied.

*Reg. Trade Mark, Shell Chemical Corp.



The Iridite section, where cases and the covers are treated prior to being coated with primer, aluminum and clear top coat.

coating is applied as received. On short runs the operator uses a hand cup gun at 45 to 50-lbs. per square inch pressure for the prime coat, aluminum and clear. By trial and error we have found it best never to exceed 60-psi. nor drop below 45-psi. For continuous runs, the resin solutions are mixed in a 10-gallon agitator tank.

Cases and covers are racked on a tiered wagon and moved to the No. 1 spray station. Here they are laid out on a slat screen and sprayed with the first of two dark gray prime coats. When the entire load of parts has been sprayed, the operator starts again with the first

On short runs, operator uses a hand cup gun to spray interior and exterior of cases with primer, aluminum and the clear coat.

piece, but reverses it to cover the interior surfaces. Parts are baked for 20 minutes at 325° F. (This time and temperature are identical for baking all of the epoxy coats except the last one.)

After this first prime coat, small holes and other blemishes in the die castings are filled in with a putty-like material and the parts are rubbed down. The load is then returned to the No. 1 station for the second prime coat, and parts are again baked. Total prime coat thickness is 2-mils.

Aluminum Coating; Clear Coats; Screen Process

The one-mil aluminum coating is sprayed on exterior surfaces in two passes at the No. 2 paint station. It takes the operator about 20 minutes to apply the first coat to an average load of 100 to 120 pieces. By the end of this time, the aluminum has set enough for handling and the second coat is applied. Parts are baked and then cooled off. While it might save some time, a single heavy coat would not be advisable, because of possible "orange peeling."

Parts are given two clear coats. The first is of ½-mil thickness which is sprayed on and baked. After cooling, parts are moved to the silk screening station where two operators carefully affix the Dictet letters and numerals. The silk screen paint is baked for five minutes and the parts are returned to the No. 2 station for the final clear coat of one-mil thickness. Parts are then loaded into the batch oven for a final one hour baking at 325° F.

Inspection; Laboratory Testing; A Marble-Like Finish

There are three different areas where coated cases and covers are visually inspected, while tests for mil thickness, abrasion resistance, gloss reading and coating viscosity are made every other day by our production laboratory. The lab reports any deficiencies to the paint production department, where steps are taken to correct them.

Each successive coating is baked in this batch oven for 20 minutes at 325° F.

Such testing is important. On one occasion coated parts were coming through with reduced adhesion characteristics. Smoke recording devices were immediately sent through the batch oven to check on the specific 325° F. baking temperature. We learned then that the trouble had been caused by several burned out heating elements.

Our present epoxy resin coating has been described at times as the "closest we can come to a nickel or chrome plating." Certainly we regard it as the best we have had since Dictets were first produced. It is tough and durable and gives the portable recorder a clear, marblelike finish that cannot be scratched or worn away under normal service conditions.

Author's Note: The three coatings referred to in my article are formulated by I-Sis Chemicals, Inc.

Look Here, Mr. Salesman

THE SALES department and the salesmen are the only ones who bring in the necessary revenue to support an enterprise. While it takes important money (that is capital) these days to start a business, we reiterate that it is sales which keep the company in business. As a salesman, always remember your important part in your company's scheme of affairs.—*M. O.*

Interchemical Names New Head Of International Division

Francis A. E. Spitzer has been appointed Division President of the International Division of Interchemical Corp. He has succeeded Joseph G. Morris, who relinquished his executive position in accordance with the company's retirement policies, but who will continue to serve the International Division on special assignments.

Mr. Spitzer has been associated with Interchemical for 20 years. He joined the company in 1939 as a member of its Legal Department. Named Assistant Secretary in 1943, he became Secretary and head of the Legal Department in 1945. For the past two years he has served as Division Vice-President of the International Division.

Born in Paris, France, of American parents, Mr. Spitzer holds two degrees from the University of Paris and the Diploma of the Ecole des Sciences Politiques of Paris and also was graduated from Harvard University Law School. He and his family live in Forest Hills, N. Y.

The Salesman's Peeve Against the Lab.

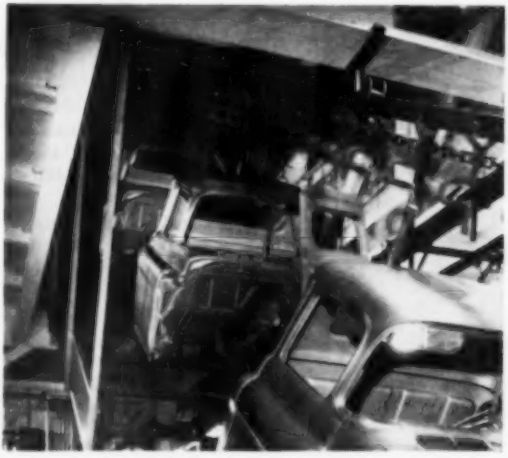
SELLING industrial finishes is highly competitive. In order to maintain an advantage, service and technology are probably the most important things that a salesman can offer a potential customer.

Sometimes it is difficult for a salesman, who has just faced either an irate customer or one who is pushing to get a particular sample, to understand why there is an apparent complacency on the part of the chemist. In nearly every paint laboratory—or so it seems to the anxious salesman—samples and answers to problems are a long time in coming. This is a pet peeve listed among salesmen, particularly when large quantities of enamel or lacquer are involved.

Another peeve, high on the representatives' list, is the chemist who sprays out a coating or recommends that a material be sprayed on in a manner known in the trade as "babying." In other words it is done with a closed down atomization and triggered spray. This is not practical for most production items on which it is customary to use the gun wide open at higher pressures and volumes.

For example, the chemist in the laboratory might formulate a hot spray lacquer which will produce excellent results at a delivery of ½-pint to possibly one pint per minute, but in the customer's installation it will bubble like crazy at 1¾ to two pints per minute. The chemist may be-

BAKING



TRUCKS AND CARS

9 new Despatch Ovens bake finishes on popular low-priced line

One of America's major automobile manufacturers has just installed 9 huge new Despatch finish-bake ovens at one of its division plants. Eight ovens are located on the roof of the plant; one inside. Temperature tolerances are controlled to ±5° F. Two prime ovens have catalytic combustion units that burn solvents released from painted parts. Here is another example of Despatch's leadership in heat processing. For information on *any* type of installation, write or call:

DESPATCH OVEN COMPANY
619 S. E. 8th St., Minneapolis 14, Minn., Dept. 43C

DESPATCH

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lieve that he has an excellent product and he may feel insulted when the salesman complains. From a practical standpoint the coating is not good. The failure of the chemist to recognize the more practical aspects of industrial finishing proves most annoying to a majority of salesmen.

When a salesman places a request for a sample order, it is very disconcerting to feel that he is "bothering" the chemist, yet many technical people do show that attitude—outwardly at least. If there were no sample orders and requests for development of new formulations, there would be no need for a laboratory and/or paint chemists.

In most cases a salesman would like to feel that he has strong technical support behind him. When complaints arise, as they surely will at times, it is usually impossible for a representative to get a chemist who will discuss the problem in a friendly way with the customer. On many occasions the technician will adopt an arbitrary manner which will only antagonize the purchaser who is already perturbed by production problems caused by what he believes must be an off batch of lacquer or enamel.

It is extremely difficult for a salesman to face the constant harassment of customers in an extremely competitive field, and then be made to feel as though he were in the way and a nuisance when he seeks cooperation within his own firm. Many companies will dispute this, but from the numbers of salesmen who have voiced these comments, it must be quite general. Of course, elimination of this friction, which may be felt rather than voiced, would certainly do much to improve the cooperative effort and elevate the quality of the material produced.—*J. M. C.*

For more data, circle 195 on colored card.

Big Business versus Small Business

EVERY USER OF organic finishes has a choice of suppliers, and very often it is between a large producer and a relatively small one. Just what is the difference, and why that difference? Which should he choose? Each class has its rightful place in the scheme of affairs and possible differing philosophies of business.

We must accept and admit that, regardless of size, practically every paint company is competent and able to formulate and manufacture satisfactory coatings. All have access to the same technical information and service from raw material concerns. The several cost figures such as raw materials, containers, wages, etc., are not too far apart.

Large manufacturers have no corner on brains and ingenuity. Some very bright chemists and men with imagination and vision are with smaller companies.

Every large company has problems — big ones; consider their investment, capital, inventory, payroll, and so on. They just have to keep the plant busy, so the logical course to follow is to go after the volume business. Actually they can not afford to nurse along many small accounts, and in practice they seldom do.

On the other hand the small paint manufacturer is a "growth concern". Small companies look for the business they can conveniently and profitably handle. Here it is not a matter of technical ability, know-how, fi-

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FICTION and FACT

FICTION: Paint Overspray Control Requires Complicated and Expensive Maintenance Procedure.

FACT: An R P Paint Arrestor Equipped Booth Can Be Changed In Minutes By Inexperienced Personnel.

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nances or the like; it is simply a question of plant capacity. If the small concern were called on to deliver say 20 drums of a certain product every few days, they probably could not do it without neglecting regular customers, which is something they wouldn't do. As a result, big orders gravitate to the big manufacturers. Volume use seeks volume production, and the smaller user generally goes to the smaller producer—and the small user often grows with the small supplier. The small business today may be a volume account in a year or perhaps in a few years.

The conclusion of the whole matter is that both the large and the small paint companies are essential. Both have their places; they meet their obligations in the way best suited to their particular capabilities. As a user, you can review your own situation and make your choice between the big supplier, with his manifest advantages, and the smaller manufacturer with his other types of advantages.—*C. R. B.*

Permiteco, Inc., Buys Permite Products Co.

Permiteco, Inc., is a new company that has purchased the Permite Paint Division from Aluminum Industries, Inc., Cincinnati, Ohio, and its subsidiary Permite Products Co., Modesto, Calif. The new company will manufacture and distribute aluminum paints, specification varnishes, concrete curing compounds and allied materials. These products will continue to be sold nationally under the brand name, "Permite."

Sales, product development, and manufacturing offices are located at 1100 E. Monument Ave., Dayton 2, Ohio, and 7th & Pecos Sts., Modesto, Calif.

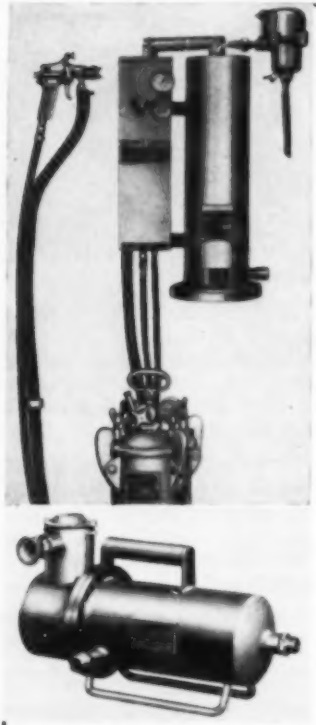
For Good Wood Finish, Surface Preparation

DO YOU DO wood finishing? Does your product demand a quality finish? If the answer is "yes" to both questions then your attention should be directed to proper *surface preparation before finishing.* Of one thing you can be sure; you cannot cover up inadequate or slighted surface preparation by piling on foundation and top coats of finishing materials, nor by finding fault with your employees or the suppliers of your materials.

Let's go back to the cause of some poor wood finishes, namely the surface on which the finish is to be applied. The primary consideration in wood finishing is complete, proper sanding of the wood. It should be sound, smooth and clean. If the surface is not "polish sanded," the best finishing system and materials will not produce a high quality finish. The most efficient, experienced operators in the finishing room, with all of their skill, cannot possibly cover up the results of a lack of thorough sanding. In fact the top coats will actually magnify surface inequalities and rough spots.

For the sake of uniformity of color, as well as to obtain a good sanding surface, it is wise to glue size the wood. This will raise the wood fibers and stiffen them so that the abrasive paper will cut them off sharp and clean instead of flattening them out temporarily.

It is well to remember that sanding does not



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Montreal, Canada

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end in the machine room, but continues after assembly—just before the product enters the finishing room—and after the wash coat and sealer. If your finish could stand some improvement (and many can) it might be well to make a close study of your sanding operations, starting in the machine room and ending just before the top coat of finish is applied.—*A. M. T.*

More Plasticizers

Monsanto Chemical Co. has announced completion of a 25% expansion of its production capacity for phthalate esters, chemicals called "plasticizers" which are added to vinyl and other thermo-plastic resins to give them flexibility.

Total plasticizer production in the U. S. has grown from 292 million pounds in 1953 to an estimated 460 million pounds in 1958. Monsanto markets more than 70 different plasticizers, the large majority of these being phthalate esters.

Quick Substitute For Statuary Bronze

A FINISHER had need for some statuary bronze powder. It was on a weekend and he was unable to secure this powder. The job was "rush," as usual. He solved it by taking burnt umber lacquer (it was a lacquer job) and adding aluminum powder. After a little experimenting and several mixes he produced a good commercial match.

It is probable that this color will be equally light fast and probably of a more permanent color than the customary bronze powder in a clear vehicle. Go easy on the aluminum powder.

Different base colors could be used and attractive novelty finishes can be developed; it is up to the individual imagination.—*Robt. McFarlin.*

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Carelessness Can Harm Finishing in General

RECENTLY some technical literature disclosed serious corrosion problems on certain airplanes which had been previously coated with seemingly excellent specification lacquers. On uncoated planes of the same type, no corrosion appeared.

This paradox puzzled many of the technical investigators, until it was discovered that incompatibility of unremoved degreasing compounds with the lacquer finishing products actually accelerated the effects of corrosion. Thus carelessness in finishing procedure tended to raise a serious question in the minds of management personnel about the advisability of discontinuing any further coating operations.

Job finishers may feel that what happens in the manufacturing plant does not concern them. Actually, however, the effects of finishing carelessness — whether it is in the cycle of manufacturing operations or in the job finisher's performance record —exert a strong influence on the overall reputation of the entire industry. As such, these effects are felt by both sides of industrial finishing. Adverse publicity contributes to further harm the good reputation of finishing and finishers.

Certainly, over a long term, a coated metal will withstand attacks of corrosion far better than a bare uncoated area. However, on the short term, when an accelerated corrosion problem occurs such as

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has just been described, most people outside of the paint and finish coatings industry hastily jump to the conclusion that lacquer and enamel coatings are valueless for certain applications. Of course, this is far from the full picture, but the result is that finishing has lost face.

Because the automotive industry was unable to maintain high chrome plating standards during and after the war years, due to the shortage of nickel, most people lost faith in all chrome plated trim and appliances. Thus stainless steel has made greater inroads. So too can the organic finishing industry lose out to substitute type materials.

It is well recognized that finishing is extremely competitive. As a result, any slight loss in potential business through adverse publicity tends to harm the whole industry. It cannot be too strongly emphasized that better quality and decreased carelessness should receive the highest priority within the ranks of those responsible for the application of paint finishes. —*A. M.*

Sincerity; Enthusiasm

SINCERITY is apparent and enthusiasm is contagious. Every successful enterprise is headed up and dominated by some positive, dominant and dynamic personality. That is how he arrived where he is. His enthusiasm and sincerity work down the chain of command. Sometimes the qualities which got the "chief" where he is "rub off" on the way down; but always remember that a salesman without sincerity and enthusiasm (which includes complete loyalty to his company) is failing his employer, and what is much more important he is failing himself.—*B. C.*

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Trouble Shooting
Production Finish Problems

(Continued from page 64)

3) INCORRECT SOLVENT. Too slow a solvent will not evaporate fast enough when applied by spraying. This prevents adequate film build, and a sagging of the paint film usually occurs.

Cratering; Causes; Remedies

1) WATER IN THE PAINT. Open the spray pot and, after letting the material stand for a while, see if water shows on the surface. Water in the paint or in the air lines will usually crater the surface of the paint film and there will still be some paint covering the steel or substrate. Water on the surface prior to paint application will show bare metal or substrate. A good magnifying glass may be needed to clarify the source of water.

2) WATER IN AIR LINES. Make a test by spraying only atomization air against a sheet of paper. Water will show as spots on the paper. Water in the air lines will require the installation, use and correct maintenance of a good separator. In severe cases a filter may be required.

3) OIL OR SOIL ON SUBSTRATE. Check the washer or method used to pre-clean the work. Solvent wiping can give trouble if the right solvent and the right procedure are not used. Change wiping rags often and see that you avoid having a build-up of oil in the solvent supply container.

4) FINISHING MATERIAL. Some coating systems are prone to crater due to poor wetting characteristics. In this case, get hold of the manufacturer and ask for additives to improve surface wetting.

Orange Peeling; Causes

1) SOLVENT MIXTURES. To eliminate orange peel, try using a slower solvent. To increase or develop orange peel, use faster solvents.

2) ATOMIZATION AIR. Raising and lowering this air pressure can vary the amount of orange peel developed, through its effect on solvent evaporation.

Low Mar Resistance; Causes

1) FORMULATION OF COATING. Certain waxes and oils can be added to improve mar-resistance. Recommend that these additives be made by the vendor.

2) IMPROPER BAKING. The oven time and heat may need to be altered to give a harder film. When making these changes, keep in mind that some of the flexibility of the coating may be sacrificed to make the coating harder.

Surface Gloss Variation; Causes and Remedies

1) FILM THICKNESS. Too much or too little paint will vary the gloss. Check wet film application.

2) SOLVENT. Weak solvents and/or low KB (Kauri Butanol, which means strength) value will cause incompatability in some paint systems—not enough to curdle the paint but enough to produce a lower gloss.

3) BAKING TEMPERATURE. Variations in oven time and heat will change the gloss. Higher baking will lower the gloss. [*To page 104*]

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FOR GRAVURE, FLEXOGRAPHIC
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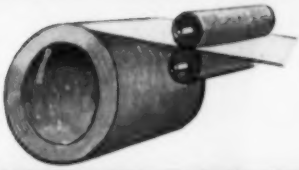

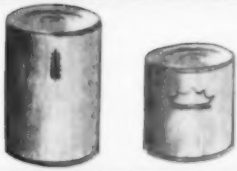

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Industrial Finishing and Common Sense

You will want to read and often refer to this new book by Eddie Zahn if you have anything to do with the materials, processes or equipment used in applying protective and decorative coatings to manufactured products. Ideas, suggestions and information revealed by Mr. Zahn are based upon 29 years of active experience and an association with many leading manufacturers.

The 18 chapters in this 344-page book contain: Selecting the Application Method, Specifications for Equipment, Process Costs, Paint Performance, Paint Material Cost, Testing Paint Materials, Surface Preparation, Film Thickness, Process Safety, Solvents and Reformulation, Paint User Management, and The Future of Industrial Paints, etc.

Mr. Zahn has written many articles on finishing and is the author of two other popular and informative books—"Flow Coating" and "Paint Evaluation."

This new book is securely bound in stiff covers 5½x8-in. Its color is black and red, lettered in gold.

Price, $9.00 per copy

Industrial Finishing Magazine

1142 N. Meridian St., Indianapolis 4, Ind.

4) METAL OR SUBSTRATE. The smoother the base, the higher the gloss. Pickling, wheelabrating, sanding and blasting will affect the surface in such a way as to produce a lower gloss. Here, either use a primer or apply more coating material.

Foreign Matter in Paint Film; Causes and Remedies

1) CONDITION OF WORK AREA. Filter the source of incoming air if possible. Otherwise, keep the painting area clean; and do all cleaning on an off shift. Use a cement sealer on unpainted floors in the finishing area.

2) FINISHING MATERIAL. Check for poor grind or pigment dispersion by flowing a sample of the coating material down over a piece of glass. Always strain the material through a filter or fine screen strainer before using it.

3) WASHER OR DRY-OFF OVEN. Clean the washer tanks often—particularly the last rinse section. Clean the dry-off oven at least once a month.

4) BAKING OVEN. Clean the oven floor and side walls at least once a month.

5) CONVEYOR. Remember, the conveyor chain or belts go through all stages of the process. Set up a cleaning schedule for this equipment, as well as for the ovens.

C. N. Chalfant; Kelite Corp.

Charles N. Chalfant has been appointed Product Manager of Metal Finishing by Kelite Corp., manufacturer of metal processing compositions, industrial chemicals, and steam cleaning equipment. Mr. Chalfant will be responsible for development of metal finishing sales in Kelite's Midwestern and Eastern regions.

FINISHING A BUST?

Switch to SPEE-FLO HOT SPRAY SYSTEMS

Exaggerated? Well, a little, maybe. But the cost of lost materials, time and quality due to runs, sags, and excessive overspray needs no exaggeration to make it an eyesore on any operating budget. Spee-Flo Hot Spray Systems save 25-40% in materials; banish runs, sags and orange peel. Hot spray finishes dry faster, look better, last longer, too. Application techniques are the same as for conventional spray. The equipment is simple and trouble-free, requiring negligible maintenance. If your finishing operation is a bust — either in cost or quality — turn it into a work of art at a savings with Spee-Flo Hot Spray.

Write for free booklet, "Why Hot Spray?"

THE SPEE-FLO COMPANY
6614 HARRISBURG • HOUSTON 11, TEXAS

130

For more data, circle 207 on colored card.

Conveyor Walk-Overs; Make Them Safe

DO YOU HAVE, in your plant, horizontal conveyors that are raised from 12 to 16-in. above floor level? Do you, as well as other employees, cross the conveyor lines to get where you want to go? If you have this type of conveyor, the chances are 100 to 1 that you do walk across it occasionally.

Human nature is pretty much the same everywhere. Nearly everyone would rather take a chance and cross the street in the middle of the block instead of walking to a street intersection and waiting for a "walk" signal. Of course, there is less danger crossing conveyor lines than crossing streets in the middle of the block. One can generally manage to ease himself between two loaded pallets or carriages without mishap, but stepping across slick steel rails could easily cause a fall.

It is almost impossible to prevent people from crossing conveyor lines, in spite of all of the instructions and warning signs you put up, therefore why not make it easy to cross—or at least provide some measure of safety in crossing? This can be done by placing a narrow wooden step on each side of the conveyor with a wood platform (even with the rails) between the two steel rails. Paint the two narrow steps and the top of the platform white so that the cross-over can be easily seen.

These walk-overs should be located at frequent intervals along the con-

METAL FINISHING NOZZLE PROBLEM

To select a nozzle which will efficiently spray phosphate coatings to metal surfaces.

SOLUTION

Delavan Type 2172 WR nozzle

This outstanding nozzle can operate effectively at pressures as low as 5 psi. Made of 316 stainless steel, the 2172 WR offers high resistance to corrosion, assuring longer, more dependable service. There are no vanes, cores or other obstructions to promote clogging.

Whatever metal finishing nozzles you require, there's a Delavan nozzle that does the job best. Write today for Catalog 33A.

DELAVAN *Manufacturing Company*

WEST DES MOINES, IOWA
World's largest nozzle specialist

For more data, circle 202 on colored card.

veyor line, and especially at those points where foot traffic is heaviest. They are inexpensive to install and maintenance amounts to about one coat of white paint a year. They might prevent a bad fall with possible serious injury. Safety measures always pay off.—*Jim.*

John F. Howe, Jr., Now Sales Mgr. of Ind. Finishes Co.

John F. Howe, Jr., formerly of the industrial sales department of a large paint manufacturer, has been named sales manager of Industrial Finishes Co., Philadelphia, Pennsylvania. His appointment is part of an expansion program by Industrial Finishes, whose principal product is "IFCO" Catalytic Coating. Young Howe will supervise the activities of an expanding sales force in the Philadelphia territory; he will also supervise the work of agents throughout the country.

Mr. Howe is the son of John F. Howe, president of Industrial Finishes.

The Glidden Co. Makes Changes

A revised method of distributing products of The Glidden Co.'s Chemicals-Pigments-Metals Division in the West Coast area has been put into effect. The Glidden division will now channel all West Coast sales activities through its own offices at strategic locations there. This will serve the division's steadily expanding number of customers in that area.

Primary products of Glidden's Chemicals-Pigments-Metals Division are titanium dioxide, lithopone, cadmium colors, metal powders and copper oxides. Warehouses containing full inventories of these products will be maintained and controlled in both the Los Angeles and San Francisco Bay areas.

Air Filter Bulletin

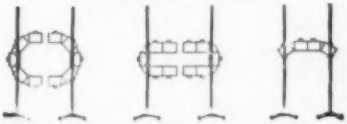
The American Air Filter Co., Louisville 8, Ky., has published an 8-page bulletin (8½x11-in.), describing three types of High Efficiency Mechanical Filters.

For more data, circle 26 on colored card.

"Patent-Flex" Infra-Red Ovens

AT WHOLESALER PRICING

Change shape quickly.



The Finest In Quality and Efficiency BUT—

NOT THE HIGHEST PRICED

Patent-Flex is Quantity Produced for Lowest Manufacturing Costs

Your Regular Electrical Wholesaler can sell you a Patent-Flex Oven. Patent-Flex never becomes obsolete because you can quickly change its shape.

New *Dual-Channel* Stand Construction for Maximum Rigidity. With Lock-Clamp Slide Adjustment.

New *Snap-On Cover Raceways* pre-wired ready for 115 or 230 V. direct connection and series connection up to 600 V. power supply.

New *Bushed Wiring Box Mounting Plate* for simplest possible power connection.

Patent-Flex for Economy with Efficiency.

Distributed nationally by:

General Electric Supply Co.

Westinghouse Electric Supply Co.

Wil-Son Manufacturing Company

Patent-Flex Oven Divn., CLOVERPORT, KY.

For more data, circle 203 on colored card.

Thermosetting Acrylic Coatings Available

THE THERMOSETTING acrylic is one of the newer film formers available to the paint industry. This type of resin is sold by several companies. It is not a particularly compatible resin. Another disadvantage is that it cannot be used with reactive pigments. Some of its advantages are: Excellent gloss, gloss retention, very pale color, color retention, toughness, flexibility, hardness and adhesion. Its resistance to impact, humidity, salt spray, caustic, grease, stains and detergents is excellent.

A high bake is needed for best results. Baking schedules such as 20 minutes at 350° F. and 30 minutes at 360° F. are employed. The coatings can be applied by spray, dip or roller coating. The material can be used as a one coat job or over primers. There is considerable experimental work being carried out on new low bake and air dry acrylic types.

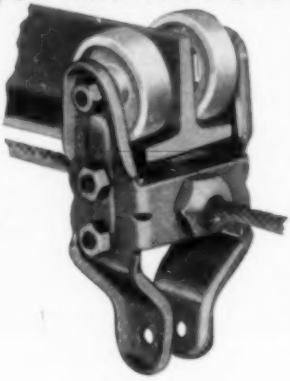
Thermosetting acrylics are recommended for such uses as finishes for appliances and automotive work. They run into competition with epoxys, epoxy combinations, and various other high quality, high price finishes.

There is a limited market for baking finishes that are appreciably higher priced than the conventional uren or melamine modified alkyds, even if the quality is higher. With each new resin that is available, the competition for this limited market becomes keener.

CLEAN!

AMERICAN "Cable-Way"®

Conveyor with NYLON WHEELS



Open T-rail track and trolleys are easily cleaned, with water or air hose.

Adaptable for explosion-proof installations.

Nylon wheels are almost noiseless.

No grease drippings. Most installations require no lubrication. Others minimum amount. Can be water-lubricated.

Galvanized or stainless steel cable.

Operates in moist conditions with minimum of maintenance.

The American "Cable-Way" Conveyor with nylon-wheeled trolleys requires grease lubrication only on the motor drive and idler sprockets. All-bolted track and suspension system makes installation fast and easy. Low-cost and dependable. Handles loads up to 250 lbs. per trolley.

← *(Left) Steel wheels are also available for average industrial installations.*

CONVEYOR DIVISION

THE AMERICAN MONORAIL CO.

Fourth & Franklin Streets • Tipp City 6, Ohio

For more data, circle 204 on colored card.

Education of the customer and possible price reductions will enlarge the market somewhat, but it still will be definitely limited. Thermosetting acrylic finishes seem to have enough good qualities, however, to enable them to find a place for themselves even against strong competition.—*Eugene V. Goldstein.*

Information on Epoxy Resins

A fund of information on epoxy resins was presented to a gathering of surface-coating formulators attending the first symposium on Epotuf epoxy resins held by Reichhold Chemicals, Inc. The meeting took place at the RCI Plasticenter in Elizabeth, N. J., in December.

A general review of epoxy characteristics and chemistry provided the background for specific data on surface coating formulations using RCI's Epotuf epoxy resins. Reichhold Chemicals has done considerable research, especially during the past year, on the uses of epoxies in coatings, enamels, protective finishes and patching compounds. The firm has developed basic formulations for all types of epoxy systems including phenolic, urea, amine and ester combinations with the various Epotuf resins.

For more data, circle 27 on colored card.

Polyvinyl Acetal Resins

A new 32-page technical manual (8½x 11-in.) on the properties and uses of Butvar, polyvinyl butyral, and Formvar, polyvinyl formal, has been published by Shawinigan Resins Corp., Springfield 1, Massachusetts.

Describing the acetal resins, Butvar and Formvar, as extremely versatile terpolymers, the booklet outlines, in detail, the physical properties of the various resin grades. In a separate section, insolubilizing reactions are described.

Also included in the booklet is a section devoted to a discussion of formulations and other data, for suggested end-use applications. Wire enamel, wood and metal coatings, adhesives, textile coatings, molding and extrusion and strip coatings are among the applications discussed.

For more data, circle 28 on colored card.

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• LONGER LASTING
• EASIER TO APPLY

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• Fillers and stains
• Sealers
• Lacquers—Clear and Semi-Gloss
• Lacquer Enamels—Flat and Gloss
• Synthetic Enamels

Quality Isn't Just Luck

Write for 5 Gallon Working Sample at Drum Price

MANUFACTURERS OF FINE WOOD AND METAL PRODUCTION FINISHES

NEW PERIOD Production Finishes

Established 1917

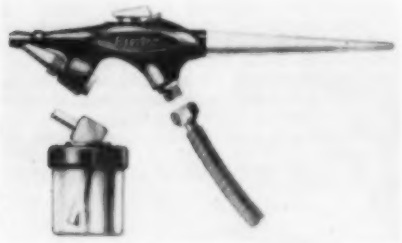
NEW YORK WOODFINISHERS' SUPPLY CO., INC.

109 Imlay Street Brooklyn, N. Y.

For more data, circle 205 on colored card.

Binks "Wren" Air Brush

Capable of producing a pencil thin line, a broad shading or a stipple effect, a new, versatile air brush is offered by the Binks Mfg. Co., 3116 Carroll Ave., Chicago 12, Illinois.



For touch-up jobs and small parts painting.

Designed for small parts finishing and touch-up in a variety of industries, the new air brush, called the "Wren," is useful in many industries.

The Wren is available in two models. Model A sprays light to medium consistency materials, such as dyes of all kinds and other light fluids; and Model B is for use with medium to light-heavy materials such as lacquers, enamels and other paints. Both models are siphon fed and capable of perfect atomization.

Color bottles ranging in size from ¼-oz. to 2½-oz. are available. The siphon type fittings and wide mouth bottles used on this air brush are easy to clean. Most standard ¾-oz. enamel bottles fit this air brush, enabling the user to spray directly from the material manufacturer's bottle. The closed bottle used on the new Wren prevents the danger of spillage as might be encountered in using an open color cup.

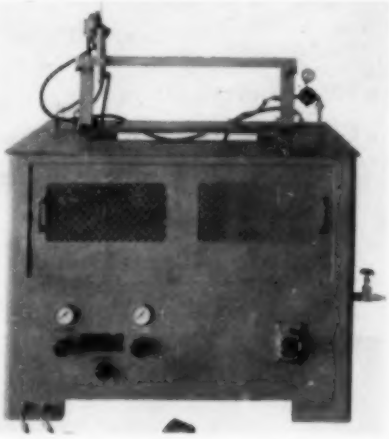
The Wren uses only ¾-cu.ft. of air per minute at 25 to 30-lbs. of pressure. The body of the Wren is drop forged aluminum. The handle is made of nylon. It weighs only 2-oz. and is slightly less than 7-in. long.

For more data, circle 1 on colored card.

Automatic Spray Machine Is Completely Enclosed

An even spread of paint material over the entire area of the piece is assured by a new automatic spray painting machine developed by Conforming Matrix Corp., 331 Factories Bldg., Toledo 2, Ohio.

The positive reciprocating drive



It is 36-in. high, 47-in. long, 30½-in. deep.

permits smooth gun travel with no pauses even when the two traversing guns reverse their direction. It is not necessary to overshoot the part with excess paint deposits on the part and the mask. Gun travel can be right up to the edge of the part and then reversed. The guns paint in both directions, automatically shutting off at the end of each stroke.

The machine sprays areas up to 8-in. wide and 22-in. long, the length of the paint coverage depending upon the setting of the control valves, between 12 and 22-in. Speed of gun travel is adjustable from 35 to 90-ft. per minute.

Electric motor and chain drive operation are employed. The motor is wired in accordance with NEMA Code 7 for explosion proof purposes. The design complies with all JIC Standards and Factory Mutual.

All dials and regulators are on the face of the machine, and all working parts are totally enclosed. The mechanism is automatically oiled with a pneumatic oil lubricator.

The machine is supplied complete with two automatic spray guns, and a 12-in. diameter round exhaust duct collar.

For more data, circle 2 on colored card.

A Water-Soluble Resin

Arolon 1000, a water-soluble resin that removes the hazard of flammable solvents yet retains the properties of high quality organic solvent thinned alkyd-melamine systems, was introduced by Archer-Daniels-Midland Co. at the National Paint Industries Show in Cleveland.

W. G. Andrews, ADM vice president and manager of the resin and plastics division, said Arolon 1000 is so fire-safe its spray will extinguish the flame of a blow torch.

Termed by Andrews a new concept in the industrial finishing field, the ADM resin has many of the advantages of both non-drying and drying alkyds used in baking finishes.

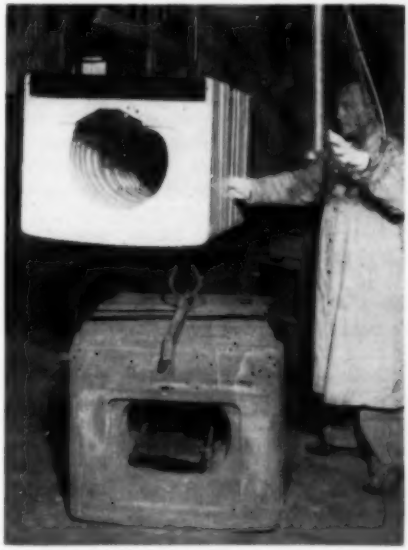
On baking, it converts to a hard, tough, mar-resistant film which rivals melamine modified coconut alkyds for color and gloss retention and chemical resistance. Its toughness, adhesion, and resistance to mar and to juices, greases, salt spray and water, equal those of melamine modified short soya alkyds.

Andrews said Arolon 1000, developed in ADM's research, is the first versatile top coat resin of the water-soluble type introduced generally to the industrial finishing industry.

For more data, circle 3 on colored card.

Strips Off Porcelain Enamel

Porcelain enameled production rejects are now being reclaimed quickly and economically through use of a chemical process known as Kolene



Porcelain enameled rejects can be stripped clean completely, quickly and safely.

deNamel, developed by Kolene Corp., 12890 Westwood Ave., Detroit 23, Michigan.

Single or multiple coats of porcelain enamel are completely removed in 5 to 15 minutes immersion in deNamel. No trace of porcelain remains—not even in corners, crevices, or points of heavy build-up. There is no attack on the base metal.

After brief immersion in Kolene deNamel, the parts are water rinsed, and are then ready for production enameling.

A typical installation includes a Kolene chemical bath, control-panel operated to maintain the necessary 900° to 950° temperature of the bath, plus a water rinse tank. Mechanical agitation of the bath insures excellent heat transfer, circulates sludge and controls sludge settling in the sludge zone.

For more data, circle 4 on colored card.

Materials Designed for Printing on Plastics

Do you have a problem of spraying or screen printing color on plastics? Of course, tests must still be made, for plastics of similar characteristics may vary between manufacturers, and even between batches of the same producer.

Wornow Process Paint Co., 1218 Long Beach Ave., Los Angeles 21, Calif., has developed a series of color materials designed for various applications on polystyrene, polyethylene, Mylar, acrylics, vinyls, butyrate and cellulose acetate. Also, included in the series, are color materials for heat converted plastics—phenolics, epoxies, melamines, ureas, polyesters, silicones, etc.

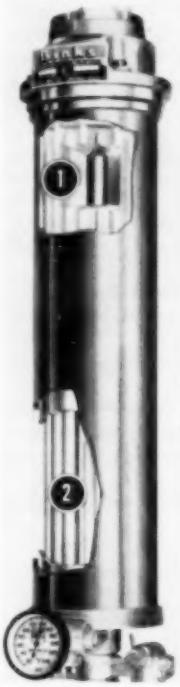
A technical bulletin has been published giving data on adhesion, flexibility, solvent resistance, chemical resistance, curing and force drying.

For more data, circle 5 on colored card.

Binks New Paint Heater

A new paint heater of entirely different design provides safe heat with a direct type of heater element. It is a product of Binks Mfg. Co., 3116 Carroll Ave., Chicago 12, Ill., manufacturer of fine spray painting equipment.

The safe heat feature is made possible by running the paint tract around the heater element. By having the heater element in the center of the paint tract, great heat transfer efficiency is obtained without dangerous high temperatures.



The paint tract consists of 22 long slots or passageways equally spaced around the outside diameter of a cylindrical aluminum block. The heater element is in the center of the block. Passageways are placed so that all of the paint entering the heater must pass through each of them before leaving the heater. Over all, the paint travels a distance of 27 linear feet, over more than 3⅓ sq.ft. of heating area.

Since the heat is emitted radially from the center of the block outward, it must pass through the paint before it is dissipated, thus assuring great efficiency. Heat transfer is accomplished with a surface block temperature only a few degrees higher than the desired paint temperature. Clog-

ging or baking, due to high temperatures, is eliminated. Should the need arise for cleaning the paint tract, it is easily removed. Removal of the outside tube allows the entire tract to be withdrawn.

The new paint heater is available for either circulating or non-circulating paint systems, and for 115 or 230 volt operation. Either model features a 1500 watt heating element; each has a capacity of 30-oz. per minute delivery at a maximum temperature of 160° F. An illustrated bulletin explains the new paint heater.

For more data, circle 6 on colored card.

Quiet Ventilating Fans

A new line of quiet operating, slow speed, belt-driven fans has been introduced by Propellair, Division of Robbins & Myers, Springfield, Ohio. Designated as Type CB, the new fans are designed for use wherever large volumes of air must be moved at relatively low noise levels and moderate pressures.

The new fans are designed principally for wall mounting; standard and heavy duty shutters are available for such installations. They are also designed for use in Propellair's line of Sky-Blast power roof ventilators. They are available in 42 to 72-in. sizes with free air deliveries ranging from 14,000 to 58,000-cu.ft. per min.

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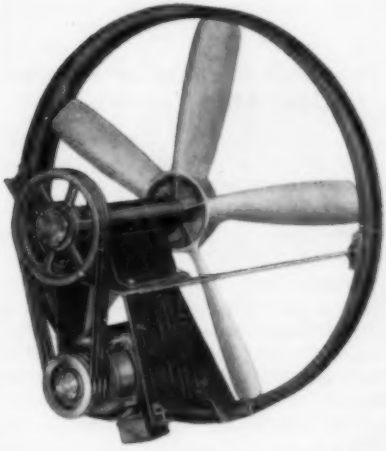

This new fan has several safety features.

Fluorescent Pigments Offered

Lawter Chemicals, Inc., 3550 Touhy Ave., Chicago 45, Ill., announces the availability of eight high conspicuity bold fluorescent pigments for use in formulating all types of industrial safety, traffic and municipal, aircraft, marine and specialty paint lines. These pigments include pink, red-orange, green, yellow orange, red, lemon yellow, cerise red, and gold yellow. They can be toned by careful addition of non-fluorescent material to produce a wide variety of extremely brilliant, high visibility colors.

Supplied only in 100% pure form, these bold pigments are effective in brightening up non-fluorescent colors. Used in strictly fluorescent paint formulations, these colors last indefinitely indoors and will fade only gradually outdoors. The pigments are compatible with most vehicles and will take small amounts of transparent extenders.

For more data, circle 8 on colored card.

Non-Foaming Spray Cleaners

Cleaners SW-57 and SW-58, powdered alkaline materials for use in pressure spray washing machines, have been introduced by Enthone, Inc., 442 Elm St., New Haven Conn., subsidiary of American Smelting & Refining Co. The two new products contain surfactants which are designed to give excellent detergency with a minimum of foam. They re-

move oil, solid dirt and other shop soils quickly and completely. Cleaner SW-57 is mild in alkalinity and safe for use on reactive metals such as zinc and aluminum. Cleaner SW-58 is designed for cleaning steel, copper, brass and magnesium.

Both cleaners are effective at concentrations of one to 4-oz. to the gallon, and at temperatures of 150 to 200° F. They can be used in all types of spray washing machines or for tank applications using various types of agitation. For most applications, either Cleaner SW-57 or Cleaner SW-58 alone will do the complete cleaning job; for buffing compound removal, either cleaner, used in the second stage of the washing machine, rapidly removes the emulsions or solvents remaining on the work from the first or buffing compound removal stage.

For more data, circle 9 on colored card.

Compressed Air Line Strainers

Spraying Systems Co. has expanded its range of compressed air line strainer capacities and choice of materials. Strainers are now supplied in a complete range of threaded pipe connection sizes, and all strainers are now available in stainless steel as well as in brass and cast iron. Screen areas for each size are unusually large.

Each strainer can take up to 75% blocking with less than ½-lb. pressure drop under normal flow conditions. Dual screen design gives a heavy outside screen to protect against surge and bursting and a fine-mesh inside screen for straining. Screens are supported top and bottom by flange collars to provide seal fit and rigidity. Strainers are easily flushed. For more information write for Line Strainer Bulletin 94 to Spraying Systems Co., 3240 Randolph St., Bellwood, Illinois.

For more data, circle 10 on colored card.

Cold Degreasing Fluid

Remkleen WS is a clear-blue, fast-cleaning fluid; it will not burn or explode; relies on its solvency power for cleaning instead of vapor; is less toxic than carbon tetrachloride, trichloroethylene or perchloroethylene; upon evaporation it leaves no oil on the metal; is non-sludging. When it is in use, there should be adequate ventilation and workers should avoid any prolonged breathing of the solvent vapor.

Remkleen WS is used cold, either in a hand dip tank or in a conveyorized continuous dip tank or spray system. The work is allowed to drain over a tank or drain board for excellent recovery. An ordinary steel tank, with a lid that closes when not in use, is all that is required; on small jobs an open-end drum and wire basket are sufficient. This cleaning fluid is adaptable to spray cleaning. In static operations a small pump is generally a part of the equipment to circulate the solvent. Remkleen WS is a product of R. & E. Martin, 2817-21 Helen St., Philadelphia 34, Pennsylvania.

For more data, circle 11 on colored card.

Polyester Laminating Film to Coat Metal or Wood

The protective and decorativ properties found in Videne A, the new polyester laminating film offered by The Goodyear Tire & Rubber Co., Akron, Ohio, have many possibilities in several industries.

Positive adhesion is obtained with Videne A under heat and pressure alone to metal surfaces ranging from aluminum to steel. Protective surfaces result with lamination of the Videne. Decorative as well as protective surfaces are obtained by printing and/or embossing the film. Metal laminates can be drawn or

formed if proper techniques are employed. Outdoor sheeting, wall panels, doors, sills, trays, table tops, interior and exterior automotive trim are end uses.

Videne A laminates under heat and pressure to all woods and composition wood surfaces without adhesives to provide a protective pre-finished surface. In wood combinations, such as plywood, the film can be used as the adhesive to hold the plies together. Decorative and protective finishes can be obtained by printing the film.

For more data, circle 12 on colored card.

Zinc Chromate Paint Stripper

Patclin Chemical Co., of 11-23 St. Casimir Ave., Yonkers, N. Y., has developed a new Zinc Chromate Paint Stripper called "Patclin No. 206." Patclin No. 206 has been developed to strip "hard to remove" zinc chromate primer and Army and Navy specification olive drab coatings from aluminum, zinc, magnesium and steel, without attacking the base metal or affecting the Bonderizing, alodizing or anodizing.

This material is used cold, as is, in a mild steel tank. It will remove zinc chromate primers, alkyds, styrenated alkyds, nitrocellulose, cellulose acetate and oil-base coatings. It is especially effective on die castings and phosphated surfaces where the large surface area gives the coating a strong adhesive bond, and where the lifting type stripper is unable to do a clean job and necessitates hand brushing.

Patclin No. 206 dissolves the coating without causing it to become sticky, and solublizes it so that the stripped piece can be rinsed clean with water, without leaving residues and without necessitating hand scrubbing. The stripper is shipped in 55-gallon non-returnable drums.

For more data, circle 13 on colored card.

Improved Epoxy Plasticizers

A new series of improved epoxy plasticizers with built-in stabilizing properties has been developed as a result of a broad program of research on epoxy plasticizers which is being carried on at the research laboratories of Becco Chemical Division, Food Machinery & Chemical Corp., Buffalo, New York.

The new materials represent a wholly new class of epoxy plasticizers, combining the excellent stabilizing properties of the epoxy fatty acid esters with the good over-all plasticizing properties of the phthalates. They successfully protect polyvinyl chloride resins against degradation caused by heat and light, show outstanding compatibility with p.v.c. at high concentration use levels, and display no evidence of bleed even after prolonged exposure to either ultraviolet or diffused light.

For more data, circle 14 on colored card.

Filter for Compressed Air

A new air-line filter uses an interchangeable "throw-away" type filter cartridge. Cartridges are self-contained cylinders made from helically wound ribbons of phenolic resin impregnated cellulose, electrically fused together, and is unaffected by most liquids and gases.

Air enters the filter and passes through a directional flow chamber which creates a cyclonic separating action within the plastic bowl. Dirt, grit, condensate and other foreign matter are automatically separated from the air stream and forced

to the bottom of the bowl where it is trapped by a brass baffle. The residue is easily blown out by simply opening the blow-off valve. Air, thus cleaned, passes through the filter cartridge where a second cleansing process removes all remaining particles within a 40 micron rating.

Filter cartridges available in 10, 25 and 40 micron rating and can be changed without removing filter from the line.

Aluminum bowls are available and interchangeable with plastic bowls. A product of Perfecting Service Co., 332 Atando Ave., Charlotte, N. C.

For more data, circle 15 on colored card.

Quick-Disconnect Handpiece For Flexible Shafts

Stow Mfg. Co., 73 Shear St., Binghamton, N. Y., has put on the market a quick disconnect handpiece for use on Stow flexible shaft machines and flexible tool shafts. The quick disconnect hand piece speeds up changeovers where the same flexible shaft is used for two or more operations. It requires only seconds to switch from wire brush to grinding wheel or buffing wheel. Just pull off one handpiece and snap on the next one.

Change quickly from wire brush to buffing wheel or grinding wheel or other tool.

The Stow quick-disconnect handpiece has high speed ball bearings and is held in place by a spring and ball-lock mechanism in a special coupling that is attached to Stow's standard tool shafts.

For more data, circle 16 on colored card.

Strips Off Epoxy Resins

Oakite Stripper S-A, recently developed by the laboratories of Oakite Products, Inc., 20 Rector St., New York 6, N. Y., for the stripping of epoxy resins, acrylics, vinyls, polyesters, and other hard-to-remove finishes, is described in a recently issued 4-page folder.

Combining solvent and acid properties with a built-in water seal, Oakite Stripper S-A is used full strength, at room temperature. Parts are stripped by immersing them completely in the solvent-acid phase. Industrial users report favorably on the material as to its ability to reclaim imperfect parts which were formerly rejected; its ability to strip tough finishes from parts of paint-spraying equipment so that they may be used again and again; its economy in use because it requires no heating; and its safety on steel, stainless steel, aluminum, brass, and copper.

The folder, which outlines the procedure recommended for the use of this versatile new stripper, is available from Oakite Products, Inc.

For more data, circle 17 on colored card.

Day-Glo Fluorescent Color Is Brightly Luminous

Day-Glo daylight fluorescent color, through its increase in visibility, has helped to prevent "see and be seen" mid-air collisions in the U. S. Air Force Training Command. Under Visual Flight Regulation conditions (where most collisions or near misses occur) this type of accident dropped to zero on aircraft painted with Day-Glo—from a previous year high of nine before the Command's 1600 aircraft were painted with daylight fluorescent markings.

This year-long evaluation, made public in June of last year, resulted in an order to paint all non-tactical

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Air Force planes—some 13,000 aircraft—taking 50,000 gallons of material to do this job.

If Day-Glo can make planes more visible to other pilots up to peak jet speeds, it can catch your prospective customer's eyes quickly and effectively. A product of Switzer Bros., Inc., 4732 St. Clair Ave., Cleveland 3, Ohio.
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"Tri-Namic" Texture Coating

A new metallic texture finish, with unusual 3-dimensional characteristics, is announced by Universal Paint & Varnish, Inc., Bedford, Ohio. Under the trade name Tri-Namic, this economical one-coat finish is available in a wide range of brilliant colors. It can be easily applied by any spray method to all "production" metals, many plastics, wood, ceramics, etc. Air or bake drying insures excellent durability, high corrosion resistance, excellent gloss and color retention.
For more data, circle 19 on colored card.

Highly Resistant Organosol

Metal & Thermit's Unichrome Coating B-64 provides a hard but flexible finish which is highly resistant to abrasion and to corrosives. This new vinyl organosol is available in a variety of colors. The finish can be applied in various degrees of sheen, in pebble texture or smooth finish. The Unichrome Coating B-64 will not mar or crack. It withstands perspiration, ink, beverages, commercial cleaning preparations and many other acid or alkaline corrosives. Dirt and stains can be readily removed without damaging the original color and texture.

Unichrome Coating B-64 can be used as a finish for parts made of fiber glass polyester resin and many phenolic moldings, since the baking temperatures are significantly lower than required for vinyl plastisols and organosols. The material can be easily sprayed with standard paint equipment or electrostatic process.

For more information, write Metal & Thermit Corp., Rahway, N. J.
For more data, circle 20 on colored card.

New Vinyl Wrinkle Finishes

The development of wrinkle finishes based on vinyl plastisols, organosols and solutions is announced by Union Carbide Plastics Co., Division of Union Carbide Corp., 30 E. 42nd St., New York 17, N. Y.

The new finishes provide decorative effects as well as the resistance and durability characteristics of Bakelite vinyl resin-based coatings. An important ingredient in the new finishes is Monomer MG-1, a product of Union Carbide Chemicals Co., Division of Union Carbide Corp. In addition to a select combination of driers and polymerization catalysts, Monomer MG-1 is largely responsible for the development of the wrinkle pattern. The polymerizable plasticizer is also familiar as a plastisol modifier used to produce extremely rigid type plastisols. For maximum thickness wrinkle coatings, palstisols are desirable.
For more data, circle 21 on colored card.

Primer-Surfacer for Metal

A new primer-surfacer that also fills cracks in various metals, including castings, is offered by Union Chemical Corp., 410 Frelinghuysen Ave., Newark 5, N. J. One or two coats produces a heavy film that adheres perfectly, even to smooth surfaces, sands easily and does not clog abrasive paper. Suggested bake is 30 minutes at 300° F.
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For Printing Operations, the necessary basecoats, inks, sealers, top coats, engraved cylinders and printing machines are offered by Snyder Brothers Co., Toccoa, Georgia. A complete printing know-how service available for training personnel.

For more data, circle 30 on colored card.

Armorsol is the new vinyl coating for thermoset plastics and polyester fiberglas. Is a one-coat finish, competitive with baked enamel. Can be smooth or textured for approximately the same cost of baked enamel. Has high abrasion resistance. Free booklet and sample panel available. John L. Armitage & Co., 245 Thomas St., Newark 5, New Jersey.

For more data, circle 31 on colored card.

Drum Plug Wrenches; steel or bronze, fits 95% of plugs or bungs in steel drums. Morse Mfg. Co., Inc., 763 W. Manlius St., East Syracuse, N. Y.

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BoGard Finishes can be formulated to meet any conditions . . . . to match any existing color . . . . or tailor-made to give you a new and exclusive color and finish all your own. We are specialists in the solving of difficult problems. Body Bros., Inc., Bedford, Ohio.

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Custom Built Conveyors can reduce your finishing room labor costs up to as much as 50%. A conveyor system especially suited to your particular production needs gives you better quality control, resulting in a finer finish. Booklet JG gives complete information on these individualized conveyor systems. DeBurgh Conveyors, Inc., 10 S. 11th Ave., Evansville 4, Indiana.

For more data, circle 34 on colored card.

Multicolor One-Coat Finish called "Spex" is featured by V. J. Dolan & Co., Inc., 1830 N. Laramie Ave., Chicago 39, Ill. Provides a combination of two or more distinct contrast or harmonizing colors in one coat with standard spray equipment. For finishing wood, metal, plastic, brick, concrete and all types of composition board. Dries like lacquer. Available in a great number of attractive stock colors. Hides all surface irregularities. Color card available.

For more data, circle 35 on colored card.

Eclipse Auto-Rod is the most advanced automatic spray gun. This automatic air-operated spray gun is tough, solvent-proof and dependable. Complete information can be obtained from Eclipse Air Brush Co., 400 Park Ave., Newark 7, N. J., manufacturers of a complete line of automatic spray-painting equipment.

For more data, circle 36 on colored card.

Primer for 25 Metals, "Gripalloy" is available in black and colors; excellent adhesion . . . . and resistance to salt spray and solvents. Tenax Finishing Products Co., 390 Adams St., Newark 5, New Jersey.

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Perfex Satin Finshes, the original "flat" made by a new and different process, without the use of stearates or other flattening agents, have cut the dust-free time increased print resistance, increased body and build, improved clarity and color . . . all of which combines to produce a wonderful rubbed finish effect appearance and a pleasant waxed effect feel. Available in a full range of sheens to produce the exact rubbed effect and waxed feel desired. Perfection Paint & Color Co., Indianapolis 2, Indiana.

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"Nacromer" Synthetic Pearl Essence adds unusual new life and brilliance to most coating materials. No extra finishing equipment is needed, just incorporate Nacromer into your coating material and apply by your usual method. Can be applied to wood, metal, plastic, paper, leather and many other materials. The Mearl Corp., 124 E. 40th St., New York 16, N. Y.

For more data, circle 39 on colored card.

Paint and Enamel Stripper. Requires no heat, current or additives. Handling information and samples available on a full line of non-flammable, water-rinsable compounds effective in removing coating systems of primers, topcoats, air-dry or bake, from ferrous or non-ferrous surfaces. Allied Finishing Specialties Co., 2641 W. Grand Ave., Chicago 12, Illinois.

For more data, circle 40 on colored card.

Rust Preventative Industrial Coatings are offered by the United Lacquer Mfg. Corp., Linden, New Jersey. United's special formulation incorporates a rust proofing agent into customer's specified paint requirements which decorates the product and at the same time rustproofs the finish. May be used in conjunction with all conventional baking enamels, vinyls, and lacquers.

For more data, circle 41 on colored card.

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For more data, circle 232 on colored card.

Paint Testing Instruments and equipment are illustrated and described in a new large catalog. Write Gardner Laboratory, Inc., P. O. Box 5728-1, Bethesda 14, Md.

For more data, circle 42 on colored card.

Eclipse Guk-Rod Literature. Blue and gold cut-away folder has photographs and diagrams with dimensions of the new Eclipse Guk-Rod Spray Gun, an extra heavy-duty air-operated automatic spray gun. Eclipse Air Brush Co., 400 Park Ave., Newark 7, New Jersey.

For more data, circle 43 on colored card.

"How to Strip Paint" is the title of a book issued free by Oakite Products, Inc., 20 Rector St., New York 6, N. Y. Outlines better ways to strip paint. Be sure to write for your copy. Oakite has more than a dozen fine stripping materials for every stripping job.

For more data, circle 44 on colored card.

Protects Silver Plate from tarnish or discoloration, even after weeks of contact with stretched rubber band. Nikolas 2105 Clear Lacquer withstood this test, and many others of equal severity. G. J. Nikolas & Co., Inc., 2850 Washington Blvd., Bellwood, Ill.

For more data, circle 45 on colored card.

"Patent-Flex" Infra-red Ovens have dual-channel construction for maximum rigidity, with lock-clamp slide adjustment. Are pre-wired, ready for connection upon delivery. Shape of the Patent-Flex infra-red ovens can be changed to fit your particular needs. Complete information can be obtained from Wil-Son Mfg. Co., Patent-Flex Oven Divn., Cloverport, Ky.

For more data, circle 46 on colored card.

Drum Enamels by E. I. duPont deNemours & Co., Inc., Finishes Division, Wilmington 98, Dela., means top efficiency on the line and greater durability in service. DuPont Drum Enamel is just one of the more than 12,000 finish formulas serving industry today. Consult DuPont for your own products and production.

For more data, circle 47 on colored card.

"Speck-Free" Finishes every time when you use Bond Tack Cloth. Save time and work with Bond Tack Cloths in handy rolls, bulk, white or gold, in four different kinds of cloth. Bond Chemical Products Co., 2641 N. Clybourn Ave., Chicago 14, Illinois.

For more data, circle 48 on colored card.

First-Class Finishes for spraying, brushing, dipping, etc., are scientifically formulated to apply easier, dry at desired speeds and give first-class jobs with less re-do's and fewer headaches. Spruance finishes contribute to more sales, and extra customer satisfaction. The Gilbert Spruance Co., Philadelphia 34, Penna.

For more data, circle 49 on colored card.

Ideal Tack Rags are used prior to painting, to wipe off and hold dust, dirt, sand particles and lint too small to see, but which might leave a blemish or defect on the final coat of paint or finish. Ideal Chemical Co., 1499 Dean Drive, South Euclid 21, Ohio.

For more data, circle 50 on colored card.

Daconite 5600 Crystal-Clear Water White Lacquer is a ready-to-spray clear lacquer, alkyd fortified, recommended for use over blond stains, light fillers, light natural woods, Masonite and metal. Has excellent cold-check resistance, and is highly resistant to scuffing and scratching. Produces a finish of good color retention and one that will not ring from alcohol, water or hot dishes. James B. Day & Co., 1872 Clybourn Ave., Chicago 14, Ill.

For more data, circle 51 on colored card.

Paint Overspray can be reprocessed in our plant to conform to its original specification in both physical and chemical properties. Paint waste overspray or paint sludge can be used again in regular production at considerable savings. Mixed color sludges can be converted to primers. Write for complete details. W. C. Richards Co., 3108 W. Vermont St., Blue Island, Illinois.

For more data, circle 52 on colored card.

Instant Stripper—For metal or wood finishes. A non-flammable, non-toxic stripper which removes almost instantly, most finishes—enamels, either lacquer or synthetic (baked or air-dried), paints, varnishes, etc. V. J. Dolan & Co., Inc., 1830 N. Laramie Ave., Chicago 39.

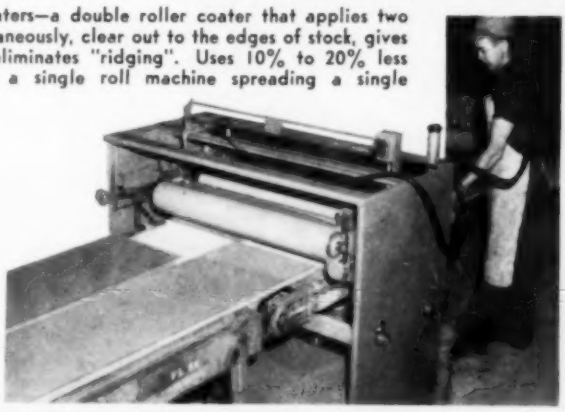
For more data, circle 53 on colored card.

Hot Spray Systems help banish runs, sags and orange peel. The applied finish dries faster, lasts longer and looks better. Spee-Flo hot spray systems can save you from 25% to 40% in materials. For a free booklet on, "Why Hot Spray?", write Spee-Flo Co., 6614 Harrisburg, Houston 11, Texas.

For more data, circle 54 on colored card.

DOUBLE ROLLER COATING MACHINE

The latest in roller coaters—a double roller coater that applies two uniform coatings simultaneously, clear out to the edges of stock, gives better coverage, and eliminates "ridging". Uses 10% to 20% less coating material than a single roll machine spreading a single coat that will cover adequately. Rollers are driven by an explosion-proof motor controlled by an explosion-proof switch. The improved long-life paint pump is driven by compressed air. Heavy frame with carefully and accurately machined moving parts. Widths 26 to 52 inches.



DUBOIS MACHINE CO.

Manufacturers of roller coaters and wood grain printing machines

TELEPHONE 2-1611 **FERDINAND, INDIANA**

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Flock, both natural and synthetic, along with research and laboratory facilities, are now available from the Claremont Flock Corp., of Claremont, N. H., formerly known as Claremont Waste Mfg. Co.
For more data, circle 55 on colored card.

Satin Finish Wooling Lacquers are ideal for use where a satin sheen finish with a smooth, silky feel is desired, without requiring a costly rubbing operation. Available in water white or in regular satin sheen wooling lacquer. Made by The Lawrence-McFadden Co., 7430 State Rd., Philadelphia 36, Penna.
For more data, circle 56 on colored card.

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Made of heavy paper stock with cloth inserts in coarse, medium, fine or extra fine mesh. 6" in diameter.

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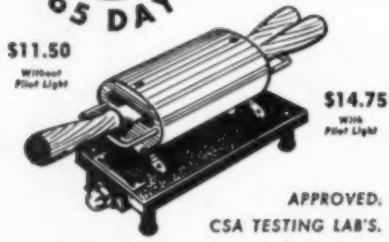

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Electric Knife Heater

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INDIANAPOLIS 5, INDIANA
For more data, circle 234 on colored card.

New Color Styling reflects the quality of furniture. Lindeman Wood Finish has both. For new colors and finishes, inquire at Lindeman's studio and laboratory in Galax, Virginia, or write Lindeman Wood Finish Company, Inc., Indianapolis 2, Ind.
For more data, circle 57 on colored card.

Sea-Lac Ready-Mixed Gold Finishes come in all shades of bronze powder, already mixed in the vehicle. Can be applied by spray or dip, and can be air dried or baked. Can be used on aluminum, steel, zinc and plastics. Has good package stability. Also come in clear if you wish to mix your own. Available in smooth finish or one-coat hammer effect. Duralac Chemical Corp., 84 Lister Ave., Newark 5, New Jersey.
For more data, circle 58 on colored card.

RP Paint Arrestors cut costs, increase production in spray booths and reduce maintenance costs. Paint Arrestors Are easily replaced in a short time and provide like-new paint overspray removal efficiency with minimum down-time. RP Paint Arrestors are adaptable to almost every operation, and economical in original installation. Research Products Corporation, Madison 10, Wis.
For more data, circle 59 on colored card.

Pyroxcote Lacquers for Plastics do not disturb the structural integrity of molded parts. Pyroxcote coatings are docerative, functional, clear or colored and economical. Application can be by dip, brush or spray to all important plastics, vinyls, polystyrene, acetates, etc. Pyroxylin Products, Inc., Chicago 32, Ill., and Paoli, Pennsylvania.
For more data, circle 60 on colored card.

Exposure Test. Actual weathering, corrosion and sunlight tests, direct and under glass for quick predetermination of durability and permanency in southern Florida by South Florida Test Service, Inc., 4301 N. W. 7th St., Miami 34, Florida.
For more data, circle 61 on colored card.

Complete Paint Finishing System, such as flow coating, dip coating or automatic spraying, metal cleaning and phosphatizing equipment, baking ovens, air replacement systems and conveyors can be engineered and installed by The Spra-Con Co., 3600 Elston Ave., Chicago 18, Ill., The Spra-Con catalog illustrates and describes many installations of complete paint finishing systems—small, medium and large.
For more data, circle 62 on colored card.

Mask Washing Machines, spray painting masks, clamps and fixtures and automatic machines are among the products of Conforming Matrix Corp., 331 Toledo Factories Bldg., Toledo 2, Ohio. Write for literature on how this automatic equipment can reduce labor costs. Our engineering staff will counsel with you on the most efficient technique for handling your particular requirements.

For more data, circle 63 on colored card.

Processing Equipment or Special Production Equipment of any kind can be engineered for your particular product by consulting The R. C. Mahon Co., Detroit 34, Mich. Their engineers can help you plan and lay out the equipment that will produce the desired end result at minimum cost per unit processed.

For more data, circle 64 on colored card.

"Dura-Kote Phosphatizing Compounds withstand all exacting requirements for superior salt spray, humidity and coating weight tests. It's easily controlled, is non-sludging and cleans better. Works for a long period in the tanks. Write for free Handy Daily Control booklet used in phosphatizing operations. The DuBois Co., Inc., 1120 W. Front St., Cincinnati 3.

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"Remkleen WS" is a clear fluid that degreases like magic. Requires no water, heat, steam or power and no expensive equipment. Simply rinse, spray or dip the work in Remkleen WS and it produces a chemically clean surface for immediate painting, coating or processing. 5-gallon can at drum price. R & E Martin, Dept. J-O, 2817-21 Helen St., Philadelphia 34, Pennsylvania.

For more data, circle 66 on colored card.

Conveyorized Ovens can be engineered for your particular drying and baking operation problems, by The Lanly Co., 2800 Euclid Ave., Cleveland 15, Ohio. Catalog No. 560 will get you better acquainted with the Lanly organization.

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Half-Second Butyrate lacquers give outdoor aluminum maximum protection. Is clear, non-yellowing, weather-resistant. This tough finish will protect the surface for long periods and the action of rain alone will remove the accumulation of most dirt and grime. Easy to apply, economical to use, excellent protection in one coat. Eastman Chemical Products, Inc., 260 Madison Ave., New York 16.

For more data, circle 68 on colored card.

Gas-Tight, Fog-Proof Goggles for use by paint sprayers and workmen in metal cleaning, grinding and polishing departments. Can be worn with any make respirator or mask. Soft, pliable rubber frames give air-tight fit on any shape face. H. S. Cover, South Bend, Indiana.

For more data, circle 69 on colored card.

For more data, circle 235 on colored card.

GAS-TIGHT! FOG-PROOF!
GOGGLES
PROTECT EYES AGAINST PAINT SPRAY, dust, fumes, gas, smoke, etc. Can be worn with any make respirator or mask. Soft, pliable rubber frames give air-tight fit an any shape face. A few drops of water on inside of lenses keep fog off by a simple nod or shake of head. Sample $2.00 postpaid! Order today!
H. S. COVER, DEPT. 110 South Bend 14, Indiana

For more data, circle 209 on colored card.

Paint Heaters by Binks Mfg. Co., 3116-40 Carroll Ave., Chicago 12, Ill., save you on operating cost. The heat is in the center of the heater and the paint tract has a large heat contact area. Temperature is thermostatically controlled at 150° F. Entire paint tract can be removed for easy maintenance. Get complete information from free bulletin or direct from the company.

For more data, circle 70 on colored card.

"Agateen No. 2" is the air-drying lacquer that gives additional adhesion. Other Agateen clears are available which assure beauty, quality, good appearance and protection. Available in air-dry and bake. Agate Lacquer Mfg. Co., Inc., 11-13 43rd Rd., Long Island City 1, N. Y.

For more data, circle 71 on colored card.

Ferlon Removes Rust without harming metal. Alkaline derusting compound Ferlon quickly removes rust from steel parts without injury to the metal. Is ideal for use on expensive, close-tolerance machined parts. Improve your plating by using Ferlon for rust and smut removal. Wyandotte Chemicals Corp., Wyandotte, Michigan.

For more data, circle 72 on colored card.

For more data, circle 236 on colored card.

"GunJet No. 22HPSSTC" for hydraulic, high pressure spray coating and painting, gives efficient, trouble-free performance. Made of stainless steel body and cap, tungsten carbide valve seat and needle and Teflon packings. Needle cleans seat orifice automatically. Can be used at pressures from 400 to 2000-psi. Complete choice of interchangeable orifice tips in all spray patterns, capacities and materials. Spraying Systems Co., 3240 Randolph St., Bellwood, Illinois.

For more data, circle 73 on colored card.

"Profitwin Graining Machines" give a handsome two-color wood grain finish. Provide your products with the beauty that insures Sales Preference. Hamant Model DV-27 Profitwin Graining Machine produces two-color graining with a distinctive "worth-more" look. Complete information available from Hamant Tool Co., Inc., 502 Warren St., Dayton 9, O.

For more data, circle 74 on colored card.

"Mono-Bake" Primers and recommended enamels, which combine in a single-baking system to eliminate a costly second-handling and second-baking operation, and provide tougher, more coherent and durable films, are features by Barrett Varnish Co., 1532 S. 50th Court, Cicero 50, Ill. Primer is available in colors harmonizing with the finish coat, if required, and can be either sprayed or dipped.

For more data, circle 75 on colored card.

"Dustix" Tack Rags are glassine bagged or bulk packed, are long-lasting and spontaneous combustion-proof. Help assure a perfect finish by using "Dustix" tack rags on your product. Modern 1st Aid Mfg. Co., Industrial Divn., 737-A W. Randolph St., Chicago 6, Ill.

For more data, circle 76 on colored card.

RECOVER your Paint Overspray

• REPROCESSED in our plant to conform to its original specification, in both physical and chemical properties, paint waste overspray or sludge can be used again in regular production at considerable savings. Our more than 21 years' experience is customers' guarantee of satisfaction.

PRIMERS—WHITES—COLORS—

• Write for complete details!

Mixed color sludges can be converted to primers.

W. C. RICHARDS COMPANY 3108 W. Vermont St., Blue Island, Ill.

For more data, circle 210 on colored card.

Leather-Textured Finishes by Metal & Thermit Corp., Rahway, N. J., give a hard yet flexible chip-proof and corrosion-resistant coating to products of complicated shapes. Spray Coating 6400 gives a quality finish in any color you like. Send for bulletin giving complete information.

For more data, circle 77 on colored card.

"Tapematic" is an automatic mask, label and tape dispenser that dispenses over 400 different pre-cut pressure-sensitive masking tapes, different sizes and shapes of printed or unprinted masks from the same roll and dispenses all masks at the operators' speed of application. Quik-Masks can be manufactured in any size and shape you specify. For details and a demonstration of the "Tapematic" write W. H. Brady Co., 733 W. Glendale Ave., Milwaukee 9, Wisconsin.

For more data, circle 78 on colored card.

Speedip Centrifugal Coaters for enameling and lacquering uniform or irregularly shaped parts, automatically dip and then spin off all excess coating material. All operations are automatic within the machine. No additional outside tanks, no cleaning of machine necessary and there is no loss of material. Send your product to be coated; also get further information on how the Speedip coater can save you up to 80% in material. Ronci Machine Co., 2 Atlantic Blvd., Centredale 11, Rhode Island.

For more data, circle 79 on colored card.

"Hypalon-Based Finishes may be applied by roller coat, doctor blade, spray, dip or silk screen. Can be air-dried or baked. Hypalon is a new film former that makes possible a finish of unusual elasticity, excellent resistance to chemicals, humidity, fire, abrasion, fading. Can be used on wood, metal, polyurethane, vinyl, concrete, and hardboard. Write Dept. HV-12, Grand Rapids Varnish Corp., Grand Rapids 2, Mich., for more complete information as to how Hypalon-based formulas can be adapted to meet your specified needs.

For more data, circle 80 on colored card.

Burn-in Tools for making quick and skillful repairs to nicked, dented or scratched finishes. The Op-Al Electric & Mfg. Co., 3155 Martindale Ave., Indianapolis 5, Ind.

For more data, circle 81 on colored card.

"Epoxystrip" Paint Stripper saves time and money. Will not harm soft metals, is economical, no scrubbing or manual assistance necessary. Excellent for removal of epoxies. Free brochure on request from Beck Equipment Co., 3350 W. 137th St., Cleveland 11, Ohio.

For more data, circle 82 on colored card.

"Octastrip" Stripper removes the toughest Epoxy, vinyl or polyester finishes. Without obligation send a sample of your work to be stripped. Within 48 hours Octagon Process, Inc., Industrial Technical Service Divn., 15 Bank St., Staten Island 1, N. Y., will solve your problem and have a test sample of the best Octastrip stripper for your problem on the way to you for your production testing.

For more data, circle 83 on colored card.

"Controlled Application" by DeVilbiss Co. automatic spray, provides the exact amount of material, evenly, over specific areas. Gun positions and angles are precisely set and timed to the split second to eliminate variations in film thickness, color, luster and textures. Material use is constant and production rates uniform. Can be used for spraying deep cavities as well as uniformly coating exterior surfaces. The DeVilbiss Co., Toledo 1, O.

For more data, circle 84 on colored card.

Be Sure of a Perfect Finish!

"DUSTIX" TACK RAGS

Glassine Bagged or Bulked Packed. Long lasting—spontaneous combustion-proof. Prompt quotations and shipments. Write

Modern 1st Aid Mfg. Co., Ind. Div.
737-A W. Randolph St., Chicago 6, Ill.

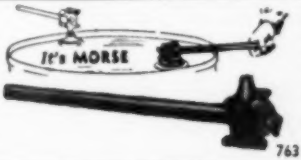
For more data, circle 237 on colored card.

Send NOW for this FIT-ALL

DRUM PLUG WRENCH

Instantly loosens, tightens 95% all plugs or bungs in steel drums. Has 16" extra-strong steel tubing handle. Wgt. only 2 lbs.

Order 1 or more today!



THOUSANDS IN USE saving time, labor, accidents!

SATISFACTION GUARANTEED..... $3.80

Non-Sparking type.....$5.90
Plus Parcel Post

MORSE MFG. CO., Inc.
763 W. Manlius St., E. Syracuse, N.Y.

For more data, circle 211 on colored card.

BOOKS
On Finishing Available

"ORGANIC PROTECTIVE COATINGS," (386 pages)	$7.50
"PROTECTIVE COATINGS FOR METALS," (643 pages)	12.00
"ORGANIC COATING TECHNOLOGY," Vol. 1	13.50
"ALUMINUM PAINT & POWDER" (219 pages)	4.50
"FLOW COATING," (296 pages) new..	8.00
"CHEMICAL FORMULARY" (Vol. X) (Preceeding Volumes also available, same price)	8.00
"PRACTICAL FURNITURE AND WOOD FINISHING"	2.00
"FURNITURE FINISHING" (543 pages)	5.00
"SPRAY PAINTING"—Industrial and Commercial (169 pages)	2.50
"COLOR DECORATION AND DESIGN (200 pages)	3.00
"THE MIXING OF COLORS AND PAINTS" (292 pages)	3.00
"WOOD FINISHING" (361 pages)	3.00
"MODERN POLISHES AND SPECIALTIES" (316 pages)	7.50
"GRAINING"—Ancient and Modern (224 pages)	5.00
"SCREEN PROCESS METHODS OF REPRODUCTION" (252 pages)	4.00
"THE SCIENCE OF WRINKLE FINISHING" (204 pages)	5.00
"THE SCIENCE OF MODERN WOOD FINISHING" (386 pages)	7.50
"PAINT VARNISH TECHNOLOGY" (509 pages)	8.00
"RESTORING & MAINTAINING FINISHES" (88 pages)	2.75
"INDUSTRIAL FINISHING AND COMMON SENSE" (335 pages)	9.00
"FINISHING MATERIALS AND METHODS" (320 pages)	4.00
"ENCYCLOPEDIA OF THE CHEMICAL PROCESS INDUSTRIES" (820 pages)	12.00
"PROFESSIONAL FURNITURE PATCHING, REPAIRING and APPLIANCE TOUCH-UP," (90 pages)	3.50
"SCIENTIFIC PAINT EVALUATION," (321 pages)	9.00
"FILM FORMATION, FILM PROPERTIES and FILM DETERIORATION," (430 pages)	9.75
"INDUSTRIAL DETERGENCY" (340 pages)	8.75
"PRINCIPLES OF COLOR & COLOR MIXING," (131 pages)	6.00
"SURFACE COATINGS AND FINISHES," (299 pages)	9.00

Cash Must Accompany Order—
Send for Descriptive Catalog

INDUSTRIAL FINISHING
1142 N. Meridian St. Indianapolis 4, Ind.

Acrylic, Alkyd, Vinyloid coatings for a wide range of special jobs, are offered by The Varnish Products Co., 5206 Harvard Ave., Cleveland 5, Ohio.

For more data, circle 85 on colored card.

Airless Spray Coating minimizes overspray problems, reduces health and fire-hazards, cuts maintenance and clean-up costs, saves paint, time and labor and reduces auxiliary painting equipment requirements. Above these advantages a better finished product is the final result. Write Nordson Corp., Amherst, Ohio, for the Airless Spray Painting brochure.

For more data, circle 86 on colored card.

Industrial Finishes, specially formulated for your production line and products, give your products a salable appearance. For a perfect protective and decorative finish for your particular purpose, consult the Rockford Varnish Co., Rockford, Illinois.

For more data, circle 87 on colored card.

BFC Chromic Acid (flake) is available from Better Finishes & Coatings, Inc., 268 Doremus Ave., Newark 5, N. J. Every batch is checked, and every can filled with a full weight of extra-high quality Chromic Acid. Prompt delivery from ample factory and nearby distributor stocks.

For more data, circle 88 on colored card.

"Tootsietoys" are just one of the many lines of toys successfully coated with the Ransburg No. 2 Process. Electrostatic spray painting cuts rejects, gives a more uniform coating and less material. Ransburg No. 2 Process brochure shows numerous production line examples of electrostatic spray painting on a wide variety of products. Write Ransburg Electro-Coating Corp., P. O. Box 7822, Indianapolis 23, Indiana.

For more data, circle 89 on colored card.

Steinemann Pressure Curtain Coater gives fast, economical and uniform coverage. Clear and pigmented lacquers, varnishes, polyesters or synthetics can be applied to smooth or irregular shaped surfaces. With strict controls over pressure, speed and viscosity, this coater produces a uniform coating. No spray, splash or waste. Excess material is returned to reservoir for reuse. Applies coatings of .5 to 100.0 mil in thickness. Bulletin SIF-5 gives complete information. George Koch Sons, Inc., Evansville 4, Indiana.

For more data, circle 90 on colored card.

Irradiant Grid Gas Burner is especially designed by Granco, Inc., 317 32nd St., S. W., Grand Rapids 8, Mich., for curing and baking enamel finishes. It can also be used in burn-off ovens and in dry-off ovens which follow power washers. It produces radiant heat through means of an open retort refractor.

For more data, circle 91 on colored card.

Formulations for Plastic Products have been created by Randolph Products Co., Carlstadt, N. J. Spray lacquer coatings equal to every plastic coating problem, particularly adhesion and the tendency to craze, have been formulated in decorative color contrasts, to give a new lift to your sales results.

For more data, circle 92 on colored card.

Hot Spray Units called Therm-O-Spray, heat both the material and the air electrically. Safety and adjustable controlled heat (170° to 350° F.) are only two of several interesting and practical features. A colorful 6-page bulletin explains and illustrates everything. Thermospray Co., Inc., 60 East 42nd St., New York 17, N. Y.

For more data, circle 93 on colored card.

"New Period" Finishes for both wood and metal are long lasting and easy to apply. Filters, stains, lacquers, sealers, lacquer enamels and synthetic enamels are among the New Period finishes available. Working samples at drum price are available. New York Woodfinishers' Supply Co., Inc., 109 Imlay St., Brooklyn, N. Y.

For more data, circle 94 on colored card.

Natural and Synthetic Pearl finishes in air dry or bake coatings for a variety of products, are offered by Rona Laboratories, Inc., E. 21st & E. 22nd St., Bayonne, New Jersey. Apply to metal, plastic, wood or glass surfaces.

For more data, circle 95 on colored card.

"Cable-Way" Conveyors, with nylon wheels, require grease lubrication only on the motor drive and idler sprockets. An all-bolted track and suspension system makes installation fast and easy. Steel wheels are also available. Can handle loads up to 250-lbs. per trolley. The American MonoRail Co., Conveyor Division, 4th & Franklin Sts., Tipp City 6, O.

For more data, circle 96 on colored card.

Phosphating Analysis Kit is available from Turco Products, Inc., 6135 S. Central Ave., Los Angeles 1, Calif., to help you determine how your products may be adapted to phosphating and the many paint adhesion advantages it offers. If you are already phosphating, this kit can be used to check on the efficiency standards and cost of your present phosphating installation.

For more data, circle 97 on colored card.

TOMORROW'S Products Tested TODAY

A service to aid industry in producing longer-lasting and better-looking products. Quick predetermination of durability and permanency by actual exposure test in South Florida. Write us today for full information.

SOUTH FLORIDA TEST SERVICE, INC.

EST. 1931

4301 N. W. 7th St. Miami 44, Fla.

For more data, circle 238 on colored card.

JAY & JAY SILK SCREEN SERVICE

Silk Screens in Silk, Nylon or Metal Cloth. Made to your specifications from your blueprint — art work — positive. More prints per screen. New method direct on screen.

JAY & JAY SILK SCREEN SERVICE

Box 243, Connersville, Indiana

Phones: 2534 - 3307 - 2246M

For more data, circle 239 on colored card.

SYNTHETIC PEARL ESSENCE

RONA T.M. FOR

PEARLESCENT FINISHES

BAKE OR AIR DRY

For Your Product Made of Metal, Plastic, Wood or Glass, Write for sample. Specify application; choice of vehicle.

RONA LABORATORIES, INC.

East 21st and East 22nd Sts., Bayonne 2, N. J.

Plants: Maine New Jersey Canada

For more data, circle 212 on colored card.

"Letter Fill" for filling recessed letters, symbols and numerals with paint on plastic or metal surfaces. A bulletin describes problems involved with using coatings and dry wipes on second surface clear plastics, as well as machine applications and different types of masks that can be used. Logo Division, Bee Chemical Co., 12933 S. Stony Island Ave., Chicago 33, Illinois.

For more data, circle 98 on colored card.

Duracote Finishes for Spray Booth Operation and bake drying, and Speed Duracote for open air spraying and a quick dry, have been developed by Tousey Varnish Co., 520 W. 25th St., Chicago 16, Ill. Duracote produces a tough, durable surface, and goes in smoothly and dries flawlessly. Speed Duracote has the same qualities plus the quick drying features of a dust free surface in ten minutes or a tack free surface in 20 minutes.

For more data, circle 99 on colored card.

"Vitrilan LC" is an organic baking enamel for appliances and metal products. Gives beauty, durability, hardness, toughness, resistance to abrasion, corrosion, alkalies. Has excellent color and color retention. Can be applied by spraying, dipping or flow coating. Bakes at conventional schedules. Interchemical Corp., Finishes Divn., 224 McWhorter St., Newark 5, New Jersey.

For more data, circle 100 on colored card.

Double Roller Coating Machine applies two uniform coatings simultaneously clear out to the edges of stock. Gives better coverage and eliminates "ridging." Uses 10% to 20% less coating material than a single roll machine. Rollers are driven by explosion-proof motor controlled by an explosion-proof switch; has long-life paint pump driven by compressed air. Takes widths 26 to 52-in. Wood graining machines also available. Dubois Machine Co., Ferdinand, Indiana.

For more data, circle 101 on colored card.

Metal Finishing Nozzles for efficiently spraying phosphate coatings to metal surfaces are available from Delavan Mfg. Co., West Des Moines, Iowa. The Delavan Type 2172 WR nozzle operates effectively at pressures as low as 5-psi. This nozzle offers high resistance to corrosion which assures more dependable service. Write for catalog 33A which gives the solutions to your metal finishing nozzle problems.

For more data, circle 102 on colored card.

Silk Screens in silk, nylon or metal cloth. Made to your specifications from your blueprint, art work or positive. More prints per screen. New method direct on screen. Jay & Jay Silk Screen Service, Box 243, Connersville, Indiana.

For more data, circle 103 on colored card.

Paint Strainers for straining lacquers, enamels, paints or varnishes. Made of heavy paper stock with cloth inserts in coarse, medium, fine and extra fine mesh, 6-in. in diameter. Louis M. Gerson Co., Box 175A, Mattapan, Mass.

For more data, circle 104 on colored card.

"Multi-Color" Centrifugal Type Electrostatic Spray Systems are now offered by Ionic Electrostatic Corporation, Garfield, New Jersey. Various smooth multicolor finishes can be produced without special coating materials with the use of this new Model M-50 Ionic Electrostatic Spray Process. An array of airless variable speed centrifugal atomizers is utilized for blending the solid single color materials to produce multi-color effects. Full details are available from the maker. Free demonstrations can be arranged.

For more data, circlt 105 on colored card.

Hi-Sol Enamel Reducer offers such merits as less "orange peel," high gloss and excellent hiding, superior flow, resistance to sagging, quick initial set, smooth finish. Potter Paint Co., Cortland 1, N. Y., and Cambridge City 1, Indiana.

For more data, circle 106 on colored card.

Ovens for Baking Car and Truck Bodies, are just one of the many types of ovens designed, engineered and installed by Despatch Oven Co., 619 S. E. 8th St., Minneapolis 14, Minn. For information on any type of oven installation write or call; Despatch can provide an oven for your particular layout and product.

For more data, circle 107 on colored card.

Clear Paper Coatings, red primer, coil coatings and coatings for metal decorating, are just a few of the many industrial coatings by Gordon Bartels Co., Rockford, Ill. Excellent materials for roller coating. Advise your method of application and product to be coated and a finish for your particular needs can be supplied.

For more data, circle 108 on colored card.

Oakite Representatives Named in Houston and K. C.

J. D. Rodgers and R. A. Nederman have been named technical service representatives of Oakite Products, Inc., in Houston and Kansas City, respectively.

Rodgers, a graduate of Texas Tech, replaces Ed Lacy, who retired recently after 37 years with Oakite. Nederman, who was educated at the University of Minnesota, is a native of Kansas City. Both men completed an intensive 8-week training course in the field and the laboratories of Oakite, manufacturer of cleaning compounds and chemical specialties for the metal industries.

James A. Bede Tells Japanese About Airless Spray Painting

James A. Bede, president of Bede International Development Co., Cleveland, Ohio, recently completed a trip around the world in which he visited his Airless Spray licensees.

In Nagoya City, Japan, he was invited to appear before members of the Asahi-Okuma Industrial Co., Ltd., to give a talk and demonstration on the Bede Airless Spray process.

Mr. Bede was quite enthused at the extreme interest expressed by people in the paint industry in Asia and in other countries, for American techniques and ideas. He is convinced that the American finishing magazines have accomplished an excellent reporting and distributing job to generate interest, on a world-wide basis, through articles and case histories on Airless Spray painting.

Plastisol Coating at H-VW-M

The Hanson-Van Winkle-Munning Co., is now applying plastisol coatings to plating equipment it manufactures at its plant in Matawan, N. J.

In addition to coating equipment that it manufactures, the company is also taking orders for custom coating of plating equipment. The new facilities enable H-VW-M to perform all related operations, including sandblasting, priming, preparatory baking, coating by both spray and dip processes, and final baking after application of the plastisol.

Tanks, racks, exhaust hoods and duct work are treated, as well as much auxiliary equipment. For further information, write Plastisol, Hanson-Van Winkle-Munning Co., Church St., Matawan, N. J.

James A. Bede (left in picture), president of Bede International Development Co., visiting with industrialists in Japan where he explains more about the airless spray painting system.

Repair and Spot Finishing
A New Practical Book

Here is the latest and most practical book on all kinds of repair and spot finishing—on new, used and antique furniture, leather tops, bronze finishes, white appliances, etc. It is attractively printed on white enameled paper and beautifully bound in stiff covers like your best library books. There are 88 pages 6½ x 9¾-in., and 75 good clear illustrations. Contents are divided into 25 chapters, with subjects alphabetically indexed in two pages at the back.

Explains and illustrates how to restore damaged finishes on wood and metals.

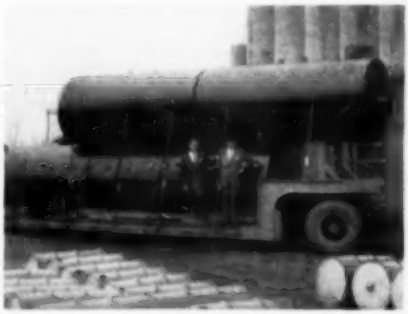
Subjects covered include about everything in the repair and spot finishing line; to name a few, for example, restoring finishes damaged by scratches, packing marks, cigarette burns, water rings, blushing, spilled liquids, and dents. Also color and grain matching, use of French polishing, producing satin and gloss finishes, making burn-in repairs, restoring the finish on antiques, repairing finish on white appliances; repair kits; brushes, spray equipment, stains, polishes, waxes, etc.

The authors are George A. Soderberg and Paul W. Karcher. This excellent book is priced at only $2.75, and can be obtained directly from. . . .

INDUSTRIAL FINISHING
1142 N. Meridian St., Indianapolis 4, Ind.

Installs More Storage Tanks

V. J. Dolan and Co., Inc., 1830 N. Laramie Ave., Chicago, Illinois, recently completed the installation of additional underground storage tanks to take care



Big storage tanks to be placed underground.

of increased production requirements. The company has also installed new and modern high-speed cutters and mixing equipment.

M. B. Roosa; Parker Rust Proof

Max B. Roosa, Executive Vice President of Parker Rust Proof Co., Detroit, was elected a member of the Parker Board as announced by R. W. Englehart, President.

Mr. Roosa has been with Parker for 22 years and has served in various sales and executive capacities. He has been a Vice President and Director of the Parker Rust Proof Co. of Canada Ltd. for the past five years.

Rinshed-Mason Buys Control of Wolverine Finishes

Purchase of a controlling interest in the Wolverine Finishes Corp., by the Rinshed-Mason Co., of Detroit, Michigan, is announced by Frederick G. Weed, President of Rinshed-Mason.

Wolverine manufactures custom wood finishes for use by the furniture industries. The company employs about 100 people and maintains plants in Grand Rapids, Morganton, N. C., and Louisville.

Rinshed-Mason Co. employs 750 people and has plants in Detroit, Anaheim, Calif., and Windsor, Ontario, Canada.

The firm manufactures all types of industrial finishes, with annual sales of approximately $25,000,000.

The controlling stock interest of Wolverine has been bought from Earl M. Dunbar, retiring president of Wolverine, and from the estate of Max Johnson. Messrs. Dunbar, Johnson and William J. Branstrom, Sr. founded Wolverine in 1927.

The new directorate will include: Frederick G. Weed, Chairman, William R. Barrett, Joseph H. Parsons, William J. Branstrom, Jr., and William J. Branstrom, Sr. Officers will be: William J. Branstrom, Jr., President; William R. Barrett, Executive Vice President; Joseph H. Parsons, Secretary; and David E. Wilcox, Treasurer.

Plastic Steel for Patching

"Devcon Products for Emergency and Maintenance Repairs" is the title of a new 8-page 8½x11-in. bulletin offered by Devcon Corp., Danvers, Mass. Through case histories, the bulletin describes the savings Plastic Steel and other Devcon products make possible.

Plastic Steel is as easy to use as modeling clay. It contains 80% steel and 20% plastic, and hardens to the strength of steel two hours after the addition of a hardening agent. It bonds steel, bronze, wood, iron, aluminum, glass, ceramic, brass and many other materials to themselves or to each other. No heat or pressure is required for hardening.

For more data, circle 109 on colored card.

Finishes for Rubber Industry

The Chemicals and Pigments Corp., Newton, Mass., has been appointed exclusive representative, in the New York area, for the complete line of finishes manufactured for the rubber industry by the National Chemical & Plastics Corp.

Polyester Coating Resin

A description of Alkydol S-1718 polyester type coating resin, including formula suggestions and evaluation of enamels produced with this product, appears in the Alkydol Reporter, No. 9, published by Alkydol Laboratories, Inc., 3242 S. 50th Ave., Cicero 50, Illinois.

Alkydol S-1718 is specifically recommended for exterior container coatings for roller coat application.

For more data, circle 110 on colored card.

Particle Size Analysis

Particle size distribution data is being made available by Particle Data Laboratories, Inc., P. O. Box 265, Elmhurst, Ill., through use of the new technique known as the Coulter Principle. This principle involves high speed electronic counting of particles at different size levels with a Coulter Counter.

Particles as small as ½ micron can be counted successfully. Counts are made at rates up to 5000 per second, thus producing data with excellent statistical accuracy.

The analysis service is being furnished for analysis of many different kinds of materials, including pigments, powdered metals, catalysts, abrasives, etc.

Less than one gram of a sample material can be mailed to the laboratory for analysis and the completed data and distribution curve will be returned. This service is suggested for routine quality control, equipment evaluations, research and development programs and checking of purchased materials.

Fire Killings and Damage

Fire killed almost 1000 people a month in the United States during 1958, according to the National Fire Protection Association. Monthly property losses ran to more than $100,000,000. Everyone can do something to prevent such high losses; be more careful and more alert always and influence others to do so too.

CLASSIFIED ADVERTISING

The rate on ads appearing in this department is $1.00 per line of 6-pt. light face type, per insertion. Minimum charge, $5.00. Ads set in 8-pt extra bold face type cost $2.00 per line, per insertion.

SALESMEN WANTED,

Now traveling middle west or southeast, to sell competitive priced lacquer thinners along with present lines. Excellent door opener for finishing material salesmen, plus unlimited earning potential—on commission basis. Address IF-638, care Industrial Finishing.

POSITION WANTED.

Furniture Finishing Foreman, 25 years' experience producing all types of high-grade bedroom, dining room, novelty furniture and fixtures. Ability to train help in all operations, handle any number of men or women. Develop new and maintain color line. Qualified to take full charge of finishing department. Can give best of references. Address IF-632, care Industrial Finishing.

POSITION WANTED.

First-class furniture finisher, 25 years' experience. Know all phases of wood finishing and can get production. Desires position as superintendent or foreman. Address IF-633, care Industrial Finishing.

PAINTER WANTED.

Western Pennsylvania woodworking plant seeking a first-class painter to do furniture finishing. Union shop with attractive fringe benefits. Address IF-634, care Industrial Finishing.

PAINT CHEMIST'S OPPORTUNITY

With very progressive Industrial Finish Manufacturer. Broad experience in formulating industrial finishes required. We produce emulsion metal finishes, so emulsion experience is desirable, but not necessary. The right man must be capable of building a lab organization in a small, substantial, fast growing company in a midwestern metropolitan area. Our compensation plan includes valuable benefits and bonus. Please submit resume and salary required with reply. All correspondence will be confidential. Address IF-637, care Industrial Finishing.

SALES REPRESENTATIVES WANTED.

Industrial Sales Representatives with experience and following for Cleveland, Chicago and Indiana territories. PRATT & LAMBERT—Inc., Industrial Sales Division, Buffalo 7, New York.

ATTENTION: ALL FINISH SALESMEN.

If your present line does not include varnish, you are missing a bet. PERFEX VARNISHES are unexcelled (yes unequalled) and are well known by volume finish users. Look at our display advertisement on page 7 of this magazine. If you are interested in the possibility of taking on PERFEX VARNISH in addition to your present line, write us. All replies will be held in strict confidence. PERFECTION PAINT & COLOR CO.

SALESMAN—INDUSTRIAL FINISHES

If you are bogged down in your present position—

If you are accustomed to earnings well up in five figures (or if you feel you have that potential)—

If you see no real future with your present firm—

If you are aggressive—

If you want real security—

YOU'RE FOR US AND WE'RE FOR YOU!

Write or wire today. We're in the Newark area, well established and growing every day. Replies confidential. Address IF-605, care Industrial Finishing.

PAINT CHEMIST

Permanent position in large plant at Kankakee, Illinois, sixty miles southwest of Chicago for paint chemist with experience in formulating high bake roller coatings and/or plastisols and vinyls. Chemistry degree preferred but not required. Good working conditions and many employee benefits. Opportunity for advancement on ability. All replies confidential. Please give full information about yourself including age, education, employment record and present salary. Write Personnel Manager,

AMERICAN-MARIETTA COMPANY

101 E. Ontario, Chicago 11, Illinois

PAINT SALESMAN WANTED.

Industrial Paint Salesman for Chicago by manufacturer of complete line of enamels and lacquers for wood and metal. Also a wide range of specialty items. Drawing account plus expenses and commissions, plus year-end bonus. Address IF-635, care Industrial Finishing.

POSITION OFFERED
DIRECTOR OF METAL FINISH LABORATORY

Reliance Varnish Company—Louisville Plant has immediate need for a director of its Metal Industrial Labs. Applicants must have had technical training, plus broad practical experience in the development of enamels and direction of a lab group.

An extensive expansion of labs now underway will provide "ground-floor" opportunities in modern and pleasant surroundings with a young, aggressive and intelligent group to lead.

If you are a Group Director now or an Assistant Director looking for an interesting challenge and attractive income possibilities, we strongly suggest you investigate the position offered. Our program for the future and other detail can best be discussed during personal interview held at our expense.

Applicants must submit complete resume, which will be held in strict confidence. Address replies to:

G. W. DUMSTORF
4730 Crittenden Drive,
Louisville, Kentucky

PAINT FORMULATOR WANTED.

Highly experienced industrial paint formulator. Degree desirable but not absolutely essential. This is an opportunity for ambitious man interested in technical career to become part of a sound progressive research organization. Address inquiry to Director of Research, RINSHED-MASON CO., 5935 Milford St., Detroit 10, Michigan. TYler 4-4600.

WANTED.

Dirty solvents and thinners. Please send samples. Have clean reclaimed solvents for sale. Modern efficient solvent recovery service. Will process for customer, material at fraction of the original cost. ACME RECLAIMING, Inc., 1915 20th Ave., Rockford, Illinois.

DIRTY THINNERS AND SOLVENTS WANTED.

Send samples and letter giving approximate contents. GET CASH FOR SCRAP. THE JOHANN COMPANY, 13900 Grant St., Dolton, Illinois. Phone Dolton 4850.

WANTED.

Condenser or heat exchanger; one pass water-cooled type. Capable of condensing 400 gallons per hour. Address IF-636, care Industrial Finishing.

FOR SALE—USED
COMPLETE FINISHING SYSTEM

One 2 Stage Washer
One 2 Pass 400° F. Oven
Two Down Draft Paint Booths
Will Handle Large Assemblies Up To 6 Ft. Wide, 7 Ft. High & 20 Ft. Long.
Equipment In Good Condition
Address Inquiries to:
Wm. H. Lebo, Plant Engr.
MARLEY CO.
6333 Strawberry Lane EM 8-2538
Louisville 14, Kentucky

DON'T BUY ANY ONE OF THESE ITEMS

UNTIL YOU GET OUR LOW PRICES! WE CARRY A LARGE STOCK OF REBUILT USED FINISHING EQUIPMENT INCLUDING AUTOMATIC CONVEYORIZED SYSTEMS.

SPRAY BOOTHS	CONVEYORS	PHOSPHATIZING UNITS
MIXING TANKS	FANS	CENTRIFUGAL ENAMELERS
PAINT HEATERS	OVENS	DEGREASERS
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GENERAL EQUIPMENT AND TRADING CO. • 2629 W. GRAND AVE., CHICAGO 12, ILL.

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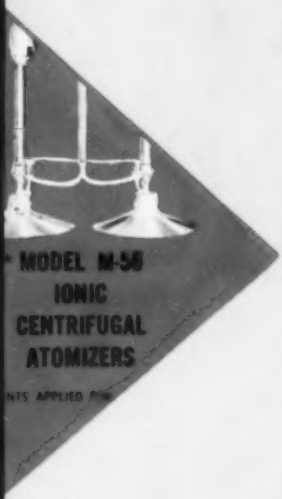


Due to extensive research and development, Ionic Electrostatic Corporation was granted numerous patents on electrostatic spray systems. Many other patents are pending on airless centrifugal type electrostatic coating processes and apparatus.

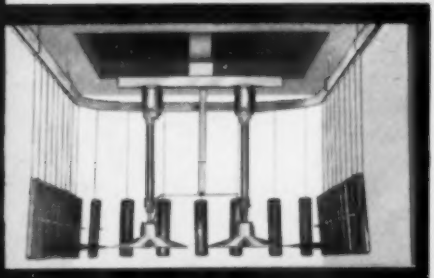
Since it is the policy of Ionic to sell all systems outright without further remuneration or royalty payments, Ionic has obtained a **Million Dollar Patent Infringement Policy** for protection of their customers or users of their new processes. A certificate of insurance is issued directly from the insurance company to each customer for a total of One Million Dollars.

This type of protection was obtained to nullify misleading statements concerning patents. Ionic will now replace other existing equipment with Royalty-Free insured systems far superior in performance to any apparatus in operation today.

This new approach to sales was enthusiastically received at the recent National Metal Exposition in Cleveland, Ohio. Tremendous interest arose particularly in the new Model M-50 Ionic Electrostatic Spray Systems which incorporate airless centrifugal atomizers capable of producing single solid color or multi-color finishes without special coating materials.

With the emphasis that is placed on color in today's consumer market, interest from manufacturers and the finishing industry indicates this development to be one of the most important of recent years for applying unique durable finishes under economical mass production methods.

Further information and literature is available upon request.



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